JEFFERSON MATH PROJECT REGENTS BY PERFORMANCE INDICATOR: TOPIC

NY Geometry Regents Exam Questions from Fall 2008 to January 2012 Sorted by PI: Topic

(Answer Key)

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Dear Sir

I have to acknolege the reciept of your favor of May 14. in which you mention that you have finished the 6. first books of Euclid, plane trigonometry, surveying & algebra and ask whether I think a further pursuit of that branch of science would be useful to you. there are some propositions in the latter books of Euclid, & some of Archimedes, which are useful, & I have no doubt you have been made acquainted with them. trigonometry, so far as this, is most valuable to every man, there is scarcely a day in which he will not resort to it for some of the purposes of common life. the science of calculation also is indispensible as far as the extraction of the square & cube roots; Algebra as far as the quadratic equation & the use of logarithms are often of value in ordinary cases: but all beyond these is but a luxury; a delicious luxury indeed; but not to be indulged in by one who is to have a profession to follow for his subsistence. in this light I view the conic sections, curves of the higher orders, perhaps even spherical trigonometry, Algebraical operations beyond the 2d dimension, and fluxions.

Letter from Thomas Jefferson to William G. Munford, Monticello, June 18, 1799.

Geometry Regents Exam Questions by Performance Indicator: Topic
Answer Section

1 ANS: 2 PTS: 2 REF: 061022ge STA: G.G.62
TOP: Parallel and Perpendicular Lines

2 ANS: 4

The slope of $y = -\frac{2}{3}x - 5$ is $-\frac{2}{3}$. Perpendicular lines have slope that are opposite reciprocals.

PTS: 2 REF: 080917ge STA: G.G.62 TOP: Parallel and Perpendicular Lines

3 ANS: 2

The slope of a line in standard form is $-\frac{A}{B}$ so the slope of this line is $-\frac{5}{3}$ Perpendicular lines have slope that are the opposite and reciprocal of each other.

PTS: 2 REF: fall0828ge STA: G.G.62 TOP: Parallel and Perpendicular Lines

4 ANS: 3

$m = \frac{-A}{B} = -\frac{3}{4}$

PTS: 2 REF: 011025ge STA: G.G.62 TOP: Parallel and Perpendicular Lines

5 ANS: 4

The slope of $3x + 5y = 4$ is $m = \frac{-A}{B} = \frac{-3}{5}$. $m_{\perp} = \frac{5}{3}$.

PTS: 2 REF: 061127ge STA: G.G.62 TOP: Parallel and Perpendicular Lines

6 ANS: 2

The slope of $x + 2y = 3$ is $m = \frac{-A}{B} = \frac{-1}{2}$. $m_{\perp} = 2$.

PTS: 2 REF: 081122ge STA: G.G.62 TOP: Parallel and Perpendicular Lines

7 ANS: 3

$2y = -6x + 8$ Perpendicular lines have slope the opposite and reciprocal of each other.

$y = -3x + 4$

$m = -3$

$m_{\perp} = \frac{1}{3}$

PTS: 2 REF: 081024ge STA: G.G.62 TOP: Parallel and Perpendicular Lines

8 ANS:

$m = \frac{-A}{B} = \frac{6}{2} = 3$. $m_{\perp} = -\frac{1}{3}$.

PTS: 2 REF: 011134ge STA: G.G.62 TOP: Parallel and Perpendicular Lines

9 ANS: 1 PTS: 2 REF: 061113ge STA: G.G.63
TOP: Parallel and Perpendicular Lines

10 ANS: 2

$$y+\frac{1}{2}x=4 \qquad 3x+6y=12$$
$$y=-\frac{1}{2}x+4 \qquad 6y=-3x+12$$
$$m=-\frac{1}{2} \qquad y=-\frac{3}{6}x+2$$
$$y=-\frac{1}{2}x+2$$

PTS: 2 REF: 081014ge STA: G.G.63 TOP: Parallel and Perpendicular Lines

11 ANS: 4

$$3y+1=6x+4. \quad 2y+1=x-9$$
$$3y=6x+3 \qquad 2y=x-10$$
$$y=2x+1 \qquad y=\frac{1}{2}x-5$$

PTS: 2 REF: fall0822ge STA: G.G.63 TOP: Parallel and Perpendicular Lines

12 ANS: 4

$$x+6y=12 \qquad 3(x-2)=-y-4$$
$$6y=-x+12 \qquad -3(x-2)=y+4$$
$$y=-\frac{1}{6}x+2 \qquad m=-3$$
$$m=-\frac{1}{6}$$

PTS: 2 REF: 011119ge STA: G.G.63 TOP: Parallel and Perpendicular Lines

13 ANS:

The slope of $y=2x+3$ is 2. The slope of $2y+x=6$ is $\frac{-A}{B}=\frac{-1}{2}$. Since the slopes are opposite reciprocals, the lines are perpendicular.

PTS: 2 REF: 011231ge STA: G.G.63 TOP: Parallel and Perpendicular Lines

14 ANS: 3

The slope of $y=x+2$ is 1. The slope of $y-x=-1$ is $\frac{-A}{B}=\frac{-(-1)}{1}=1$.

PTS: 2 REF: 080909ge STA: G.G.63 TOP: Parallel and Perpendicular Lines

15 ANS: 3

$m=\frac{-A}{B}=\frac{5}{2}$. $m=\frac{-A}{B}=\frac{10}{4}=\frac{5}{2}$

PTS: 2 REF: 011014ge STA: G.G.63 TOP: Parallel and Perpendicular Lines

16 ANS: 1

$$-2\left(-\frac{1}{2}y = 6x + 10\right)$$
$$y = -12x - 20$$

PTS: 2 REF: 061027ge STA: G.G.63 TOP: Parallel and Perpendicular Lines

17 ANS: 2

The slope of $2x + 3y = 12$ is $-\frac{A}{B} = -\frac{2}{3}$. The slope of a perpendicular line is $\frac{3}{2}$. Rewritten in slope intercept form, (2) becomes $y = \frac{3}{2}x + 3$.

PTS: 2 REF: 060926ge STA: G.G.63 TOP: Parallel and Perpendicular Lines

18 ANS: 2

The slope of $y = \frac{1}{2}x + 5$ is $\frac{1}{2}$. The slope of a perpendicular line is -2. $y = mx + b$.

$$5 = (-2)(-2) + b$$
$$b = 1$$

PTS: 2 REF: 060907ge STA: G.G.64 TOP: Parallel and Perpendicular Lines

19 ANS: 4

The slope of $y = -3x + 2$ is -3. The perpendicular slope is $\frac{1}{3}$. $-1 = \frac{1}{3}(3) + b$

$$-1 = 1 + b$$
$$b = -2$$

PTS: 2 REF: 011018ge STA: G.G.64 TOP: Parallel and Perpendicular Lines

20 ANS: 3 PTS: 2 REF: 011217ge STA: G.G.64
TOP: Parallel and Perpendicular Lines

21 ANS:

$y = \frac{2}{3}x + 1$. $2y + 3x = 6$. $y = mx + b$

$$2y = -3x + 6 \qquad 5 = \frac{2}{3}(6) + b$$
$$y = -\frac{3}{2}x + 3 \qquad 5 = 4 + b$$
$$m = -\frac{3}{2} \qquad 1 = b$$
$$m_{\perp} = \frac{2}{3} \qquad y = \frac{2}{3}x + 1$$

PTS: 4 REF: 061036ge STA: G.G.64 TOP: Parallel and Perpendicular Lines

22 ANS: 4

$y = mx + b$

$3 = \frac{3}{2}(-2) + b$

$3 = -3 + b$

$6 = b$

PTS: 2 REF: 011114ge STA: G.G.65 TOP: Parallel and Perpendicular Lines

23 ANS: 3

$y = mx + b$

$-1 = 2(2) + b$

$-5 = b$

PTS: 2 REF: 011224ge STA: G.G.65 TOP: Parallel and Perpendicular Lines

24 ANS: 2

The slope of a line in standard form is $-\frac{A}{B}$, so the slope of this line is $\frac{-2}{-1} = 2$. A parallel line would also have a slope of 2. Since the answers are in slope intercept form, find the y-intercept:

$y = mx + b$

$-11 = 2(-3) + b$

$-5 = b$

PTS: 2 REF: fall0812ge STA: G.G.65 TOP: Parallel and Perpendicular Lines

25 ANS: 4

The slope of a line in standard form is $-\frac{A}{B}$, so the slope of this line is $\frac{-4}{2} = -2$. A parallel line would also have a slope of -2. Since the answers are in slope intercept form, find the y-intercept:

$y = mx + b$

$3 = -2(7) + b$

$17 = b$

PTS: 2 REF: 081010ge STA: G.G.65 TOP: Parallel and Perpendicular Lines

26 ANS: 2

The slope of a line in standard form is $\frac{-A}{B}$, so the slope of this line is $\frac{-4}{3}$. A parallel line would also have a slope of $\frac{-4}{3}$. Since the answers are in standard form, use the point-slope formula.

$y - 2 = -\frac{4}{3}(x + 5)$

$3y - 6 = -4x - 20$

$4x + 3y = -14$

PTS: 2 REF: 061123ge STA: G.G.65 TOP: Parallel and Perpendicular Lines

27 ANS: 2

$m = \frac{-A}{B} = \frac{-4}{2} = -2$ $\quad y = mx + b$

$2 = -2(2) + b$

$6 = b$

PTS: 2 REF: 081112ge STA: G.G.65 TOP: Parallel and Perpendicular Lines

28 ANS:

$y = -2x + 14$. The slope of $2x + y = 3$ is $\frac{-A}{B} = \frac{-2}{1} = -2$. $\quad y = mx + b$.

$4 = (-2)(5) + b$

$b = 14$

PTS: 2 REF: 060931ge STA: G.G.65 TOP: Parallel and Perpendicular Lines

29 ANS:

$y = \frac{2}{3}x - 9$. The slope of $2x - 3y = 11$ is $-\frac{A}{B} = \frac{-2}{-3} = \frac{2}{3}$. $\quad -5 = \left(\frac{2}{3}\right)(6) + b$

$-5 = 4 + b$

$b = -9$

PTS: 2 REF: 080931ge STA: G.G.65 TOP: Parallel and Perpendicular Lines

30 ANS: 4

$\overline{AB}$ is a vertical line, so its perpendicular bisector is a horizontal line through the midpoint of $\overline{AB}$, which is $(0,3)$.

PTS: 2 REF: 011225ge STA: G.G.68 TOP: Perpendicular Bisector

31 ANS: 1

$m = \left(\frac{8+0}{2}, \frac{2+6}{2}\right) = (4,4)$ $\quad m = \frac{6-2}{0-8} = \frac{4}{-8} = -\frac{1}{2}$ $\quad m_{\perp} = 2$ $\quad y = mx + b$

$4 = 2(4) + b$

$-4 = b$

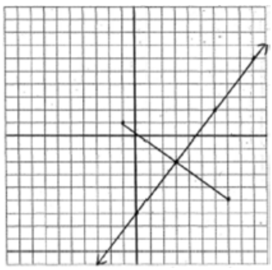
PTS: 2 REF: 081126ge STA: G.G.68 TOP: Perpendicular Bisector

32 ANS:

$y = \frac{4}{3}x - 6$. $M_x = \frac{-1+7}{2} = 3$ The perpendicular bisector goes through $(3,-2)$ and has a slope of $\frac{4}{3}$.

$M_y = \frac{1+(-5)}{2} = -2$

$m = \frac{1-(-5)}{-1-7} = -\frac{3}{4}$

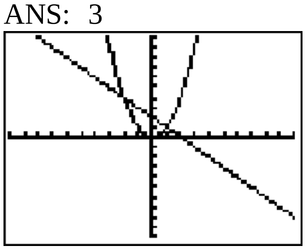


$y - y_M = m(x - x_M)$.

$y - 1 = \frac{4}{3}(x - 2)$

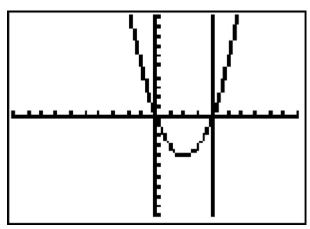
PTS: 2 4 REF: 080935ge STA: G.G.68 TOP: Perpendicular Bisector

33 ANS: 3



PTS: 2 REF: fall0805ge STA: G.G.70 TOP: Quadratic-Linear Systems

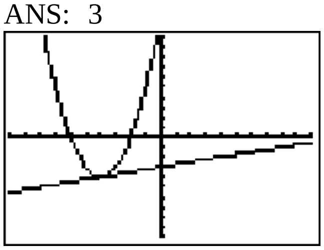
34 ANS: 1



$y = x^2 - 4x = (4)^2 - 4(4) = 0$. $(4,0)$ is the only intersection.

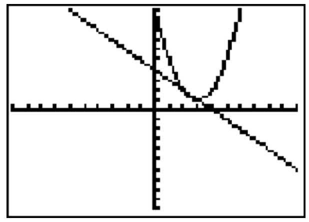
PTS: 2 REF: 060923ge STA: G.G.70 TOP: Quadratic-Linear Systems

35 ANS: 3



PTS: 2 REF: 061011ge STA: G.G.70 TOP: Quadratic-Linear Systems

36 ANS: 4



$y + x = 4$. $x^2 - 6x + 10 = -x + 4$. $y + x = 4$. $y + 2 = 4$

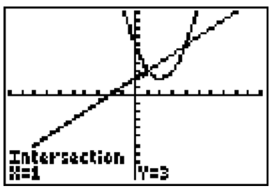
$y = -x + 4$ $\quad x^2 - 5x + 6 = 0$ $\quad y + 3 = 4$ $\quad y = 2$

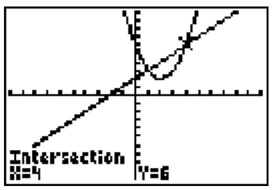
$(x - 3)(x - 2) = 0$ $\quad y = 1$

$x = 3 \text{ or } 2$

PTS: 2 REF: 080912ge STA: G.G.70 TOP: Quadratic-Linear Systems

37 ANS: 3





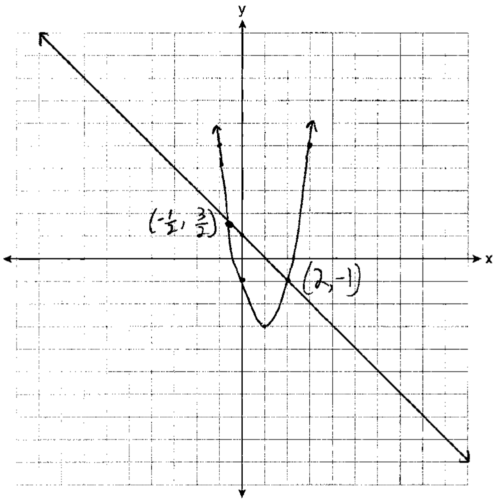
PTS: 2 REF: 081118ge STA: G.G.70 TOP: Quadratic-Linear Systems

38 ANS: 3

$$(x + 3)^2 - 4 = 2x + 5$$
$$x^2 + 6x + 9 - 4 = 2x + 5$$
$$x^2 + 4x = 0$$
$$x(x + 4) = 0$$
$$x = 0, -4$$

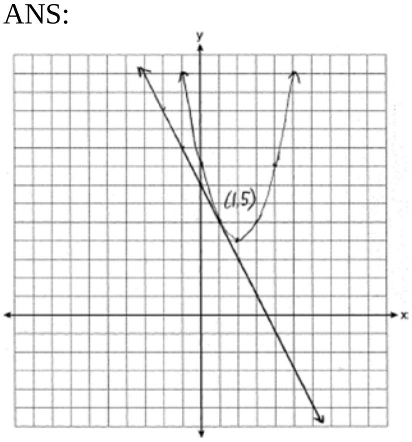
PTS: 2 REF: 081004ge STA: G.G.70 TOP: Quadratic-Linear Systems

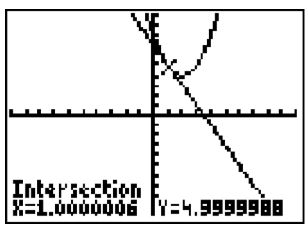
39 ANS:



PTS: 4 REF: 061137ge STA: G.G.70 TOP: Quadratic-Linear Systems

40 ANS:





PTS: 6 REF: 011038ge STA: G.G.70 TOP: Quadratic-Linear Systems

41 ANS: 2

$M_x = \dfrac{-2+6}{2} = 2.\ \ M_y = \dfrac{-4+2}{2} = -1$

PTS: 2 REF: 080910ge STA: G.G.66 TOP: Midpoint
KEY: general

42 ANS: 2

$M_x = \dfrac{7+(-3)}{2} = 2.\ \ M_Y = \dfrac{-1+3}{2} = 1.$

PTS: 2 REF: 011106ge STA: G.G.66 TOP: Midpoint

43 ANS: 4

$M_x = \frac{-6+1}{2} = -\frac{5}{2}$. $M_y = \frac{1+8}{2} = \frac{9}{2}$.

PTS: 2 REF: 060919ge STA: G.G.66 TOP: Midpoint
KEY: graph

44 ANS: 2

$M_x = \frac{2+(-4)}{2} = -1$. $M_Y = \frac{-3+6}{2} = \frac{3}{2}$.

PTS: 2 REF: fall0813ge STA: G.G.66 TOP: Midpoint
KEY: general

45 ANS: 2

$M_x = \frac{3x+5+x-1}{2} = \frac{4x+4}{2} = 2x+2$. $M_Y = \frac{3y+(-y)}{2} = \frac{2y}{2} = y$.

PTS: 2 REF: 081019ge STA: G.G.66 TOP: Midpoint
KEY: general

46 ANS:

$(2a-3, 3b+2)$. $\left(\frac{3a+a-6}{2}, \frac{2b-1+4b+5}{2}\right) = \left(\frac{4a-6}{2}, \frac{6b+4}{2}\right) = (2a-3, 3b+2)$

PTS: 2 REF: 061134ge STA: G.G.66 TOP: Midpoint

47 ANS: 1

$1 = \frac{-4+x}{2}$. $5 = \frac{3+y}{2}$.

$-4+x = 2$ $3+y = 10$

$x = 6$ $y = 7$

PTS: 2 REF: 081115ge STA: G.G.66 TOP: Midpoint

48 ANS:

$(6,-4)$. $C_x = \frac{Q_x + R_x}{2}$. $C_y = \frac{Q_y + R_y}{2}$.

$3.5 = \frac{1+R_x}{2}$ $2 = \frac{8+R_y}{2}$

$7 = 1 + R_x$ $4 = 8 + R_y$

$6 = R_x$ $-4 = R_y$

PTS: 2 REF: 011031ge STA: G.G.66 TOP: Midpoint
KEY: graph

49 ANS: 1

$d=\sqrt{(4-1)^2+(7-11)^2}=\sqrt{9+16}=\sqrt{25}=5$

PTS: 2 REF: 011205ge STA: G.G.67 TOP: Distance
KEY: general

50 ANS: 4

$d=\sqrt{(146-(-4))^2+(52-2)^2}=\sqrt{25,000}\approx 158.1$

PTS: 2 REF: 061021ge STA: G.G.67 TOP: Distance
KEY: general

51 ANS: 3

$d=\sqrt{(1-9)^2+(-4-2)^2}=\sqrt{64+36}=\sqrt{100}=10$

PTS: 2 REF: 081107ge STA: G.G.67 TOP: Distance
KEY: general

52 ANS: 4

$d=\sqrt{(-6-2)^2+(4-(-5))^2}=\sqrt{64+81}=\sqrt{145}$

PTS: 2 REF: 081013ge STA: G.G.67 TOP: Distance
KEY: general

53 ANS: 2

$d=\sqrt{(-1-7)^2+(9-4)^2}=\sqrt{64+25}=\sqrt{89}$

PTS: 2 REF: 061109ge STA: G.G.67 TOP: Distance
KEY: general

54 ANS: 4

$d=\sqrt{(-3-1)^2+(2-0)^2}=\sqrt{16+4}=\sqrt{20}=\sqrt{4}\cdot\sqrt{5}=2\sqrt{5}$

PTS: 2 REF: 011017ge STA: G.G.67 TOP: Distance
KEY: general

55 ANS: 4

$d=\sqrt{(-5-3)^2+(4-(-6))^2}=\sqrt{64+100}=\sqrt{164}=\sqrt{4}\sqrt{41}=2\sqrt{41}$

PTS: 2 REF: 011121ge STA: G.G.67 TOP: Distance
KEY: general

56 ANS: 1

$d=\sqrt{(-4-2)^2+(5-(-5))^2}=\sqrt{36+100}=\sqrt{136}=\sqrt{4}\cdot\sqrt{34}=2\sqrt{34}$.

PTS: 2 REF: 080919ge STA: G.G.67 TOP: Distance
KEY: general

57 ANS:

25. $d=\sqrt{(-3-4)^2+(1-25)^2}=\sqrt{49+576}=\sqrt{625}=25$.

PTS: 2 REF: fall0831ge STA: G.G.67 TOP: Distance
KEY: general

58 ANS: 3 PTS: 2 REF: fall0816ge STA: G.G.1
TOP: Planes

59 ANS: 4 PTS: 2 REF: 011012ge STA: G.G.1
TOP: Planes

60 ANS: 3 PTS: 2 REF: 061017ge STA: G.G.1
TOP: Planes

61 ANS: 4 PTS: 2 REF: 061118ge STA: G.G.1
TOP: Planes

62 ANS: 1 PTS: 2 REF: 060918ge STA: G.G.2
TOP: Planes

63 ANS: 1 PTS: 2 REF: 011128ge STA: G.G.2
TOP: Planes

64 ANS: 1 PTS: 2 REF: 011024ge STA: G.G.3
TOP: Planes

65 ANS: 1 PTS: 2 REF: 081008ge STA: G.G.3
TOP: Planes

66 ANS: 1 PTS: 2 REF: 011218ge STA: G.G.3
TOP: Planes

67 ANS: 2 PTS: 2 REF: 080927ge STA: G.G.4
TOP: Planes

68 ANS: 4 PTS: 2 REF: 080914ge STA: G.G.7
TOP: Planes

69 ANS: 1 PTS: 2 REF: 081116ge STA: G.G.7
TOP: Planes

70 ANS: 3 PTS: 2 REF: 060928ge STA: G.G.8
TOP: Planes

71 ANS: 2 PTS: 2 REF: 081120ge STA: G.G.8
TOP: Planes

72 ANS: 2 PTS: 2 REF: fall0806ge STA: G.G.9
TOP: Planes

73 ANS: 2 PTS: 2 REF: 011109ge STA: G.G.9
TOP: Planes

74 ANS: 1 PTS: 2 REF: 061108ge STA: G.G.9
TOP: Planes

75 ANS: 3 PTS: 2 REF: 081002ge STA: G.G.9
TOP: Planes

76 ANS: 3 PTS: 2 REF: 011105ge STA: G.G.10
TOP: Solids

77 ANS: 1 PTS: 2 REF: 011221ge STA: G.G.10
TOP: Solids

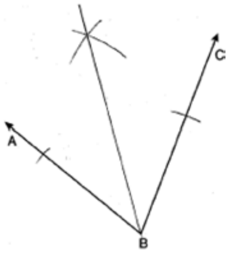
78 ANS: 3
The lateral edges of a prism are parallel.

PTS: 2 REF: fall0808ge STA: G.G.10 TOP: Solids

79 ANS: 4 PTS: 2 REF: 061003ge STA: G.G.10
TOP: Solids

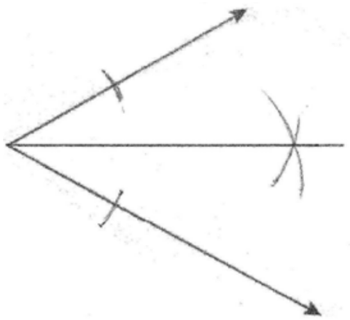
80 ANS: 4 PTS: 2 REF: 060904ge STA: G.G.13
TOP: Solids

81 ANS:



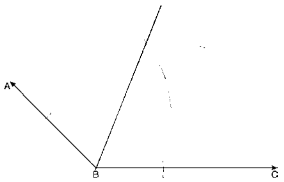
PTS: 2 REF: 080932ge STA: G.G.17 TOP: Constructions

82 ANS:



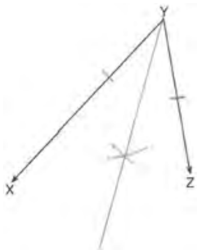
PTS: 2 REF: fall0832ge STA: G.G.17 TOP: Constructions

83 ANS:



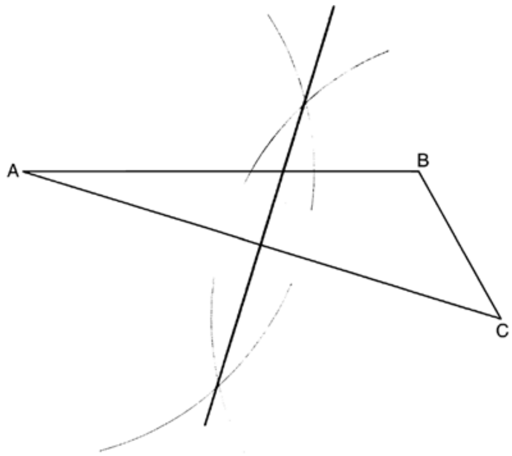
PTS: 2 REF: 011133ge STA: G.G.17 TOP: Constructions

84 ANS:

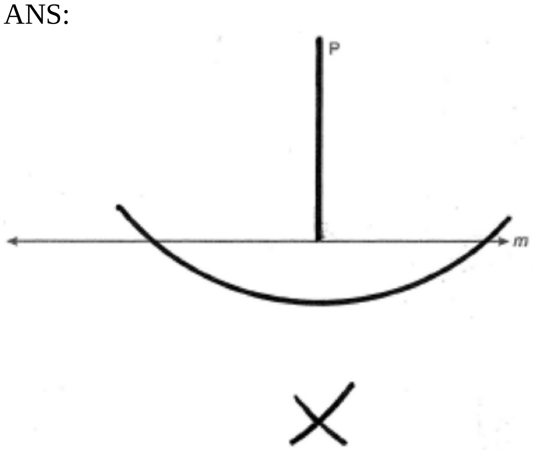


PTS: 2 REF: 011233ge STA: G.G.17 TOP: Constructions

85 ANS: 3 PTS: 2 REF: 060925ge STA: G.G.17
TOP: Constructions
86 ANS: 3 PTS: 2 REF: 080902ge STA: G.G.17
TOP: Constructions
87 ANS: 2 PTS: 2 REF: 011004ge STA: G.G.17
TOP: Constructions
88 ANS: 4 PTS: 2 REF: 081106ge STA: G.G.17
TOP: Constructions
89 ANS:



PTS: 2 REF: 081130ge STA: G.G.18 TOP: Constructions
90 ANS: 3 PTS: 2 REF: fall0804ge STA: G.G.18
TOP: Constructions
91 ANS: 2 PTS: 2 REF: 061101ge STA: G.G.18
TOP: Constructions
92 ANS: 4 PTS: 2 REF: 081005ge STA: G.G.18
TOP: Constructions
93 ANS: 1 PTS: 2 REF: 011120ge STA: G.G.18
TOP: Constructions
94 ANS:



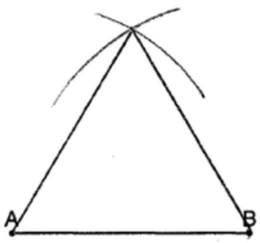
PTS: 2 REF: 060930ge STA: G.G.19 TOP: Constructions

95 ANS: 2 PTS: 2 REF: 061020ge STA: G.G.19
TOP: Constructions

96 ANS: 1 PTS: 2 REF: fall0807ge STA: G.G.19
TOP: Constructions

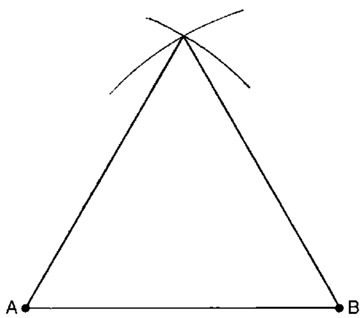
97 ANS: 4 PTS: 2 REF: 011009ge STA: G.G.19
TOP: Constructions

98 ANS:



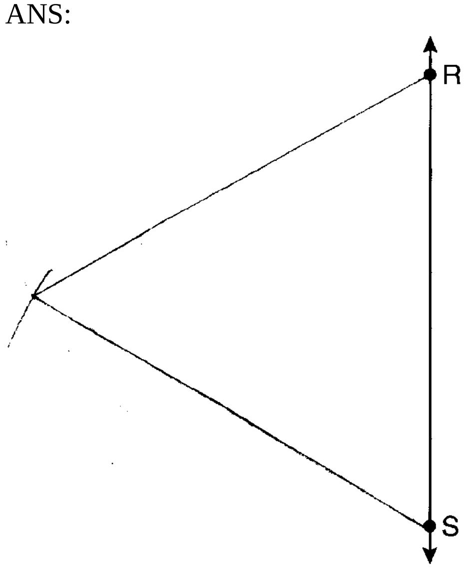
PTS: 2 REF: 011032ge STA: G.G.20 TOP: Constructions

99 ANS:



PTS: 2 REF: 081032ge STA: G.G.20 TOP: Constructions

100 ANS:

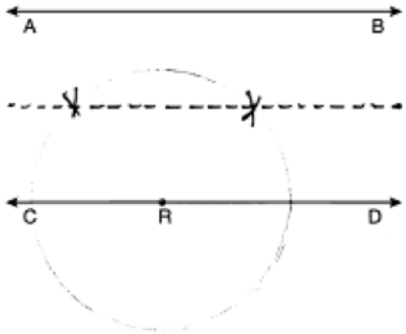


PTS: 2 REF: 061130ge STA: G.G.20 TOP: Constructions

101 ANS: 1 PTS: 2 REF: 061012ge STA: G.G.20
TOP: Constructions

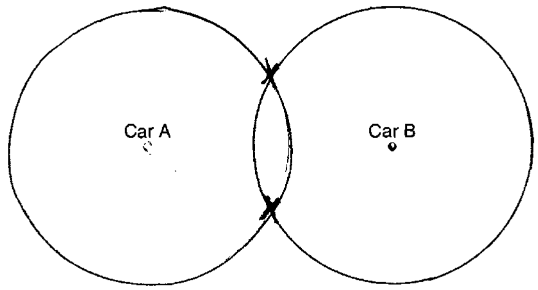
102 ANS: 1 PTS: 2 REF: 011207ge STA: G.G.20
TOP: Constructions

103 ANS:



PTS: 2 REF: 061033ge STA: G.G.22 TOP: Locus

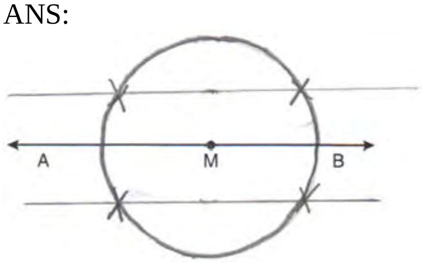
104 ANS:



PTS: 2 REF: 081033ge STA: G.G.22 TOP: Locus

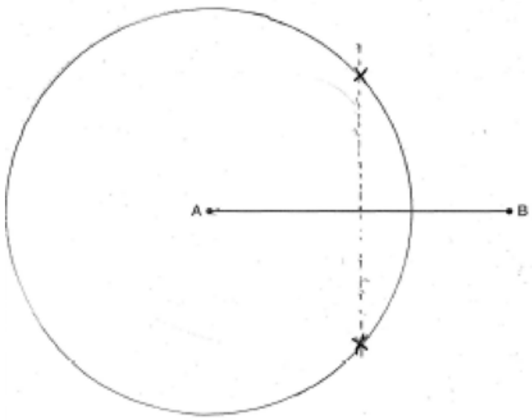
105 ANS: 2 PTS: 2 REF: 061121ge STA: G.G.22
TOP: Locus

106 ANS:



PTS: 2 REF: 011230ge STA: G.G.22 TOP: Locus

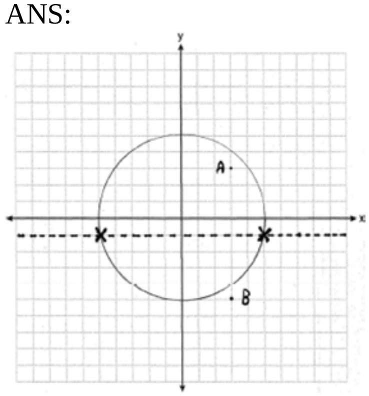
107 ANS:



PTS: 2 REF: 060932ge STA: G.G.22 TOP: Locus

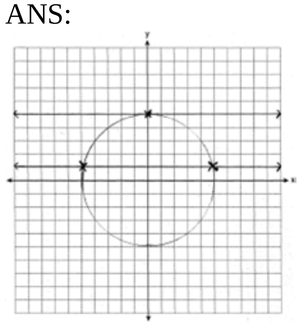
108 ANS: 2 PTS: 2 REF: 011011ge STA: G.G.22
TOP: Locus

109 ANS:



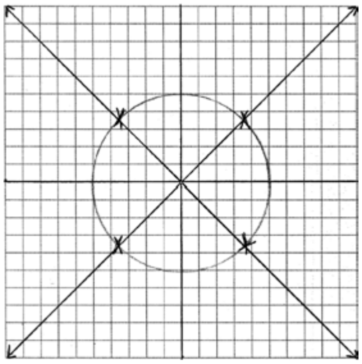
PTS: 4 REF: fall0837ge STA: G.G.23 TOP: Locus

110 ANS:



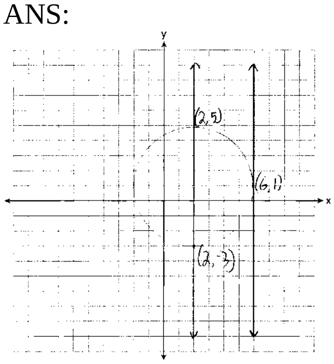
PTS: 4 REF: 080936ge STA: G.G.23 TOP: Locus

111 ANS:



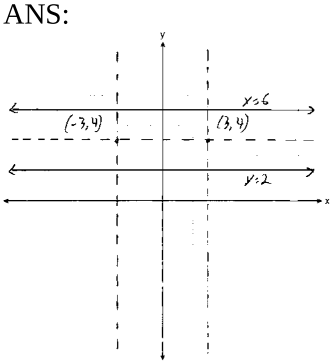
PTS: 4 REF: 011037ge STA: G.G.23 TOP: Locus

112 ANS:



PTS: 4 REF: 011135ge STA: G.G.23 TOP: Locus

113 ANS:



PTS: 4 REF: 061135ge STA: G.G.23 TOP: Locus

114 ANS: 2 PTS: 2 REF: 081117ge STA: G.G.23
TOP: Locus

115 ANS: 4 PTS: 2 REF: 060912ge STA: G.G.23
TOP: Locus

116 ANS: 4

The marked 60º angle and the angle above it are on the same straight line and supplementary. This unmarked supplementary angle is 120º. Because the unmarked 120º angle and the marked 120º angle are alternate exterior angles and congruent, $d \parallel e$.

PTS: 2 REF: 080901ge STA: G.G.35 TOP: Parallel Lines and Transversals

117 ANS: 2

$7x = 5x + 30$

$2x = 30$

$x = 15$

PTS: 2 REF: 061106ge STA: G.G.35 TOP: Parallel Lines and Transversals

118 ANS: 2

$6x + 42 = 18x - 12$

$54 = 12x$

$x = \frac{54}{12} = 4.5$

PTS: 2 REF: 011201ge STA: G.G.35 TOP: Parallel Lines and Transversals

119 ANS: 3

$7x = 5x + 30$

$2x = 30$

$x = 15$

PTS: 2 REF: 081109ge STA: G.G.35 TOP: Parallel Lines and Transversals

120 ANS: 2 PTS: 2 REF: 061007ge STA: G.G.35
TOP: Parallel Lines and Transversals

121 ANS:

Yes, $m\angle ABD = m\angle BDC = 44$ $180 - (93 + 43) = 44$ $x + 19 + 2x + 6 + 3x + 5 = 180$. Because alternate interior

$6x + 30 = 180$

$6x = 150$

$x = 25$

$x + 19 = 44$

angles $\angle ABD$ and $\angle CDB$ are congruent, $\overline{AB}$ is parallel to $\overline{DC}$.

PTS: 4 REF: 081035ge STA: G.G.35 TOP: Parallel Lines and Transversals

122 ANS: 3

$8^2 + 24^2 \neq 25^2$

PTS: 2 REF: 011111ge STA: G.G.48 TOP: Pythagorean Theorem

123 ANS: 1

$$a^2 + (5\sqrt{2})^2 = (2\sqrt{15})^2$$
$$a^2 + (25 \times 2) = 4 \times 15$$
$$a^2 + 50 = 60$$
$$a^2 = 10$$
$$a = \sqrt{10}$$

PTS: 2 REF: 011016ge STA: G.G.48 TOP: Pythagorean Theorem

124 ANS: 2

$$x^2 + (x+7)^2 = 13^2$$
$$x^2 + x^2 + 7x + 7x + 49 = 169$$
$$2x^2 + 14x - 120 = 0$$
$$x^2 + 7x - 60 = 0$$
$$(x+12)(x-5) = 0$$
$$x = 5$$
$$2x = 10$$

PTS: 2 REF: 061024ge STA: G.G.48 TOP: Pythagorean Theorem

125 ANS: 3

$$x^2 + 7^2 = (x+1)^2 \qquad x + 1 = 25$$
$$x^2 + 49 = x^2 + 2x + 1$$
$$48 = 2x$$
$$24 = x$$

PTS: 2 REF: 081127ge STA: G.G.48 TOP: Pythagorean Theorem

126 ANS: 1

In an equilateral triangle, each interior angle is 60° and each exterior angle is 120° (180° - 120°). The sum of the three interior angles is 180° and the sum of the three exterior angles is 360°.

PTS: 2 REF: 060909ge STA: G.G.30 TOP: Interior and Exterior Angles of Triangles

127 ANS: 1

If $\angle A$ is at minimum (50°) and $\angle B$ is at minimum (90°), $\angle C$ is at maximum of 40° (180° - (50° + 90°)). If $\angle A$ is at maximum (60°) and $\angle B$ is at maximum (100°), $\angle C$ is at minimum of 20° (180° - (60° + 100°)).

PTS: 2 REF: 060901ge STA: G.G.30 TOP: Interior and Exterior Angles of Triangles

128 ANS: 1

$$x + 2x + 2 + 3x + 4 = 180$$
$$6x + 6 = 180$$
$$x = 29$$

PTS: 2 REF: 011002ge STA: G.G.30 TOP: Interior and Exterior Angles of Triangles

129 ANS: 1

$3x + 5 + 4x - 15 + 2x + 10 = 180$. $m\angle D = 3(20) + 5 = 65$. $m\angle E = 4(20) - 15 = 65$.

$$9x = 180$$
$$x = 20$$

PTS: 2 REF: 061119ge STA: G.G.30 TOP: Interior and Exterior Angles of Triangles

130 ANS: 4

$$\frac{5}{2+3+5} \times 180 = 90$$

PTS: 2 REF: 081119ge STA: G.G.30 TOP: Interior and Exterior Angles of Triangles

131 ANS: 3

$$\frac{3}{8+3+4} \times 180 = 36$$

PTS: 2 REF: 011210ge STA: G.G.30 TOP: Interior and Exterior Angles of Triangles

132 ANS:

34. $2x - 12 + x + 90 = 180$

$$3x + 78 = 90$$
$$3x = 102$$
$$x = 34$$

PTS: 2 REF: 061031ge STA: G.G.30 TOP: Interior and Exterior Angles of Triangles

133 ANS:

26. $x + 3x + 5x - 54 = 180$

$$9x = 234$$
$$x = 26$$

PTS: 2 REF: 080933ge STA: G.G.30 TOP: Interior and Exterior Angles of Triangles

134 ANS: 4

$180 - (40 + 40) = 100$

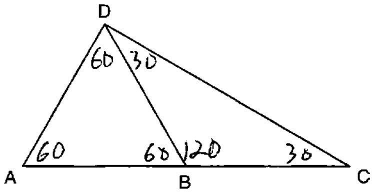
PTS: 2 REF: 080903ge STA: G.G.31 TOP: Isosceles Triangle Theorem

135 ANS: 3 PTS: 2 REF: 011007ge STA: G.G.31
TOP: Isosceles Triangle Theorem

136 ANS: 3 PTS: 2 REF: 061004ge STA: G.G.31
TOP: Isosceles Triangle Theorem

137 ANS: 4 PTS: 2 REF: 061124ge STA: G.G.31
TOP: Isosceles Triangle Theorem

138 ANS:



30.

PTS: 2 REF: 011129ge STA: G.G.31 TOP: Isosceles Triangle Theorem

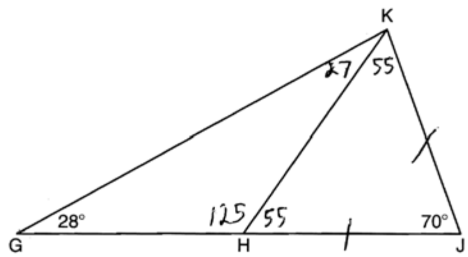
139 ANS:

67. $\frac{180-46}{2}=67$

PTS: 2 REF: 011029ge STA: G.G.31 TOP: Isosceles Triangle Theorem

140 ANS:

No, $\angle KGH$ is not congruent to $\angle GKH$.

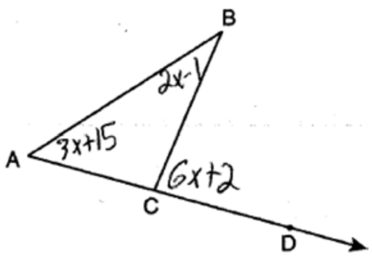


PTS: 2 REF: 081135ge STA: G.G.31 TOP: Isosceles Triangle Theorem

141 ANS: 2 PTS: 2 REF: 061107ge STA: G.G.32
TOP: Exterior Angle Theorem

142 ANS: 2 PTS: 2 REF: 011206ge STA: G.G.32
TOP: Exterior Angle Theorem

143 ANS: 1



$$3x+15+2x-1=6x+2$$
$$5x+14=6x+2$$
$$x=12$$

PTS: 2 REF: 011021ge STA: G.G.32 TOP: Exterior Angle Theorem

144 ANS:
110. $6x + 20 = x + 40 + 4x - 5$

$6x + 20 = 5x + 35$

$x = 15$

$6((15) + 20 = 110$

PTS: 2 REF: 081031ge STA: G.G.32 TOP: Exterior Angle Theorem

145 ANS: 3
$x + 2x + 15 = 5x + 15$ $2(5) + 15 = 25$

$3x + 15 = 5x + 5$

$10 = 2x$

$5 = x$

PTS: 2 REF: 011127ge STA: G.G.32 TOP: Exterior Angle Theorem

146 ANS: 3 PTS: 2 REF: 081111ge STA: G.G.32
TOP: Exterior Angle Theorem

147 ANS: 4
(4) is not true if $\angle PQR$ is obtuse.

PTS: 2 REF: 060924ge STA: G.G.32 TOP: Exterior Angle Theorem

148 ANS: 2
$7 + 18 > 6 + 12$

PTS: 2 REF: fall0819ge STA: G.G.33 TOP: Triangle Inequality Theorem

149 ANS: 2
$6 + 17 > 22$

PTS: 2 REF: 080916ge STA: G.G.33 TOP: Triangle Inequality Theorem

150 ANS: 2
$5 - 3 = 2, 5 + 3 = 8$

PTS: 2 REF: 011228ge STA: G.G.33 TOP: Triangle Inequality Theorem

151 ANS:
$\overline{AC}$. $m\angle BCA = 63$ and $m\angle ABC = 80$. $\overline{AC}$ is the longest side as it is opposite the largest angle.

PTS: 2 REF: 080934ge STA: G.G.34 TOP: Angle Side Relationship

152 ANS: 1 PTS: 2 REF: 061010ge STA: G.G.34
TOP: Angle Side Relationship

153 ANS: 4
Longest side of a triangle is opposite the largest angle. Shortest side is opposite the smallest angle.

PTS: 2 REF: 081011ge STA: G.G.34 TOP: Angle Side Relationship

154 ANS: 2
Longest side of a triangle is opposite the largest angle. Shortest side is opposite the smallest angle.

PTS: 2 REF: 060911ge STA: G.G.34 TOP: Angle Side Relationship

155 ANS: 4
$m\angle A = 80$

PTS: 2 REF: 011115ge STA: G.G.34 TOP: Angle Side Relationship

156 ANS: 4 PTS: 2 REF: 011222ge STA: G.G.34
TOP: Angle Side Relationship

157 ANS: 2

$$\frac{3}{7} = \frac{6}{x}$$

$$3x = 42$$

$$x = 14$$

PTS: 2 REF: 081027ge STA: G.G.46 TOP: Side Splitter Theorem

158 ANS: 3

$$\frac{5}{7} = \frac{10}{x}$$

$$5x = 70$$

$$x = 14$$

PTS: 2 REF: 081103ge STA: G.G.46 TOP: Side Splitter Theorem

159 ANS: 4

$\triangle ABC \sim \triangle DBE$. $\dfrac{\overline{AB}}{\overline{DB}} = \dfrac{\overline{AC}}{\overline{DE}}$

$$\frac{9}{2} = \frac{x}{3}$$

$$x = 13.5$$

PTS: 2 REF: 060927ge STA: G.G.46 TOP: Side Splitter Theorem

160 ANS:

5. $\dfrac{3}{x} = \dfrac{6+3}{15}$

$$9x = 45$$

$$x = 5$$

PTS: 2 REF: 011033ge STA: G.G.46 TOP: Side Splitter Theorem

161 ANS:

32. $\frac{16}{20} = \frac{x-3}{x+5}$. $\overline{AC} = x - 3 = 35 - 3 = 32$

$16x + 80 = 20x - 60$

$140 = 4x$

$35 = x$

PTS: 4 REF: 011137ge STA: G.G.46 TOP: Side Splitter Theorem

162 ANS:

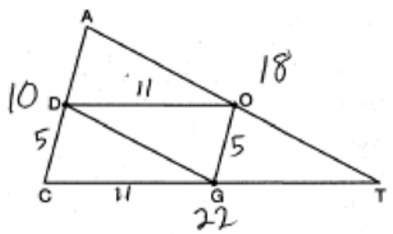
16.7. $\frac{x}{25} = \frac{12}{18}$

$18x = 300$

$x \approx 16.7$

PTS: 2 REF: 061133ge STA: G.G.46 TOP: Side Splitter Theorem

163 ANS: 3



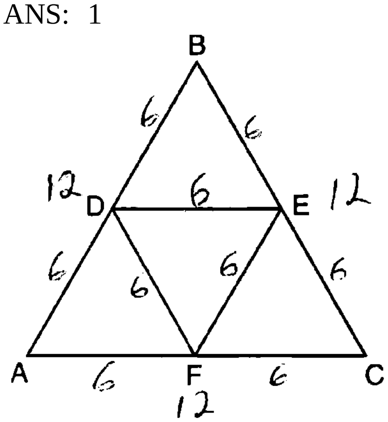
PTS: 2 REF: 080920ge STA: G.G.42 TOP: Midsegments

164 ANS:

37. Since $\overline{DE}$ is a midsegment, $AC = 14$. $10 + 13 + 14 = 37$

PTS: 2 REF: 061030ge STA: G.G.42 TOP: Midsegments

165 ANS: 1



PTS: 2 REF: 081003ge STA: G.G.42 TOP: Midsegments

166 ANS: 2

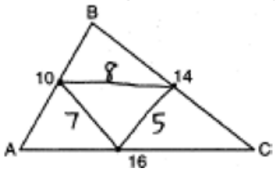
$$\frac{4x+10}{2}=2x+5$$

PTS: 2 REF: 011103ge STA: G.G.42 TOP: Midsegments

167 ANS:

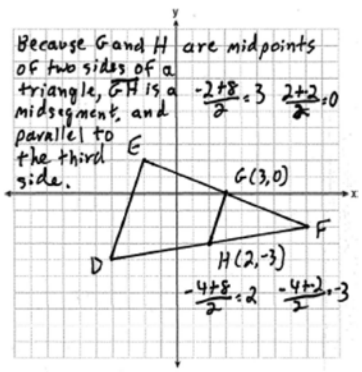
20. The sides of the triangle formed by connecting the midpoints are half the sides of the original triangle.

$5+7+8=20.$



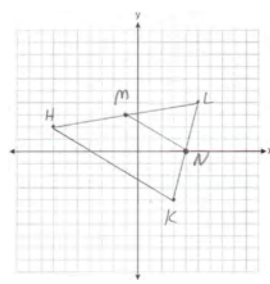
PTS: 2 REF: 060929ge STA: G.G.42 TOP: Midsegments

168 ANS:



PTS: 4 REF: fall0835ge STA: G.G.42 TOP: Midsegments

169 ANS:



$M\left(\frac{-7+5}{2},\frac{2+4}{2}\right)=M(-1,3)$. $N\left(\frac{3+5}{2},\frac{-4+4}{2}\right)=N(4,0)$. $\overline{MN}$ is a midsegment.

PTS: 4 REF: 011237ge STA: G.G.42 TOP: Midsegments

170 ANS: 4 PTS: 2 REF: 080925ge STA: G.G.21

TOP: Centroid, Orthocenter, Incenter and Circumcenter

171 ANS: 4

$\overline{BG}$ is also an angle bisector since it intersects the concurrence of $\overline{CD}$ and $\overline{AE}$

PTS: 2 REF: 061025ge STA: G.G.21

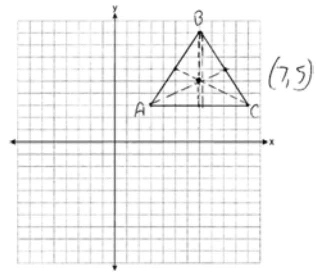
KEY: Centroid, Orthocenter, Incenter and Circumcenter

172 ANS: 1 PTS: 2 REF: 081028ge STA: G.G.21

TOP: Centroid, Orthocenter, Incenter and Circumcenter

173 ANS: 3 PTS: 2 REF: 011110ge STA: G.G.21
KEY: Centroid, Orthocenter, Incenter and Circumcenter

174 ANS:



$(7,5)$ $m_{\overline{AB}} = \left(\frac{3+7}{2}, \frac{3+9}{2}\right) = (5,6)$ $m_{\overline{BC}} = \left(\frac{7+11}{2}, \frac{9+3}{2}\right) = (9,6)$

PTS: 2 REF: 081134ge STA: G.G.21
TOP: Centroid, Orthocenter, Incenter and Circumcenter

175 ANS: 3 PTS: 2 REF: fall0825ge STA: G.G.21
TOP: Centroid, Orthocenter, Incenter and Circumcenter

176 ANS: 3 PTS: 2 REF: 011202ge STA: G.G.21
TOP: Centroid, Orthocenter, Incenter and Circumcenter

177 ANS: 1
The centroid divides each median into segments whose lengths are in the ratio 2 : 1.

$$\overline{GC} = 2\overline{FG}$$
$$\overline{GC} + \overline{FG} = 24$$
$$2\overline{FG} + \overline{FG} = 24$$
$$3\overline{FG} = 24$$
$$\overline{FG} = 8$$

PTS: 2 REF: 081018ge STA: G.G.43 TOP: Centroid

178 ANS: 1 PTS: 2 REF: 061104ge STA: G.G.43
TOP: Centroid

179 ANS: 2
The centroid divides each median into segments whose lengths are in the ratio 2 : 1.

PTS: 2 REF: 060914ge STA: G.G.43 TOP: Centroid

180 ANS: 1
$7x + 4 = 2(2x + 5)$. $PM = 2(2) + 5 = 9$

$$7x + 4 = 4x + 10$$
$$3x = 6$$
$$x = 2$$

PTS: 2 REF: 011226ge STA: G.G.43 TOP: Centroid

181 ANS:
6. The centroid divides each median into segments whose lengths are in the ratio 2 : 1. $\overline{TD} = 6$ and $\overline{DB} = 3$

PTS: 2 REF: 011034ge STA: G.G.43 TOP: Centroid

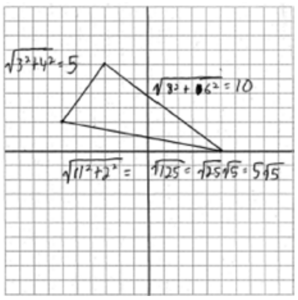
182 ANS: 1
Since $\overline{AC} \cong \overline{BC}$, $m\angle A = m\angle B$ under the Isosceles Triangle Theorem.

PTS: 2 REF: fall0809ge STA: G.G.69 TOP: Triangles in the Coordinate Plane

183 ANS: 2 PTS: 2 REF: 061115ge STA: G.G.69
TOP: Triangles in the Coordinate Plane

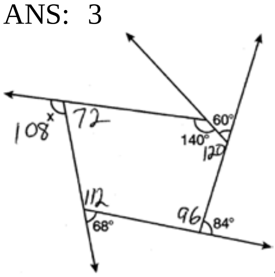
184 ANS:

$15 + 5\sqrt{5}$.



PTS: 4 REF: 060936ge STA: G.G.69 TOP: Triangles in the Coordinate Plane

185 ANS: 3



. The sum of the interior angles of a pentagon is $(5-2)180 = 540$.

PTS: 2 REF: 011023ge STA: G.G.36 TOP: Interior and Exterior Angles of Polygons

186 ANS: 3
$(n-2)180 = (5-2)180 = 540$

PTS: 2 REF: 011223ge STA: G.G.36 TOP: Interior and Exterior Angles of Polygons

187 ANS: 4
sum of interior $\angle$s = sum of exterior $\angle$s

$$(n-2)180 = n\left(180 - \frac{(n-2)180}{n}\right)$$

$$180n - 360 = 180n - 180n + 360$$

$$180n = 720$$

$$n = 4$$

PTS: 2 REF: 081016ge STA: G.G.36 TOP: Interior and Exterior Angles of Polygons

188 ANS: 1

$\angle A = \frac{(n-2)180}{n} = \frac{(5-2)180}{5} = 108$ $\angle AEB = \frac{180-108}{2} = 36$

PTS: 2 REF: 081022ge STA: G.G.37 TOP: Interior and Exterior Angles of Polygons

189 ANS: 4

$(n-2)180 = (8-2)180 = 1080.$ $\frac{1080}{8} = 135.$

PTS: 2 REF: fall0827ge STA: G.G.37 TOP: Interior and Exterior Angles of Polygons

190 ANS: 2

$(n-2)180 = (6-2)180 = 720.$ $\frac{720}{6} = 120.$

PTS: 2 REF: 081125ge STA: G.G.37 TOP: Interior and Exterior Angles of Polygons

191 ANS:

$(5-2)180 = 540.$ $\frac{540}{5} = 108$ interior. $180-108 = 72$ exterior

PTS: 2 REF: 011131ge STA: G.G.37 TOP: Interior and Exterior Angles of Polygons

192 ANS: 1

$\angle DCB$ and $\angle ADC$ are supplementary adjacent angles of a parallelogram. $180-120 = 60.$ $\angle 2 = 60-45 = 15.$

PTS: 2 REF: 080907ge STA: G.G.38 TOP: Parallelograms

193 ANS: 1

Opposite sides of a parallelogram are congruent. $4x-3 = x+3.$ $SV = (2)+3 = 5.$

$$3x = 6$$

$$x = 2$$

PTS: 2 REF: 011013ge STA: G.G.38 TOP: Parallelograms

194 ANS: 3 PTS: 2 REF: 011104ge STA: G.G.38
TOP: Parallelograms

195 ANS: 3 PTS: 2 REF: 061111ge STA: G.G.38
TOP: Parallelograms

196 ANS: 1 PTS: 2 REF: 011112ge STA: G.G.39
TOP: Special Parallelograms

197 ANS: 2

The diagonals of a rhombus are perpendicular. $180-(90+12) = 78$

PTS: 2 REF: 011204ge STA: G.G.39 TOP: Special Parallelograms

198 ANS: 3

$\sqrt{5^2+12^2} = 13$

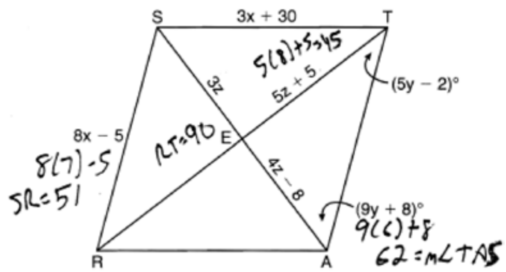
PTS: 2 REF: 061116ge STA: G.G.39 TOP: Special Parallelograms

199 ANS: 1 PTS: 2 REF: 061125ge STA: G.G.39
TOP: Special Parallelograms

200 ANS: 1 PTS: 2 REF: 081121ge STA: G.G.39
TOP: Special Parallelograms

201 ANS: 3 PTS: 2 REF: 081128ge STA: G.G.39
TOP: Special Parallelograms

202 ANS:



$8x-5=3x+30.$ $4z-8=3z.$ $9y+8+5y-2=90.$

$5x=35$ $z=8$ $14y+6=90$

$x=7$ $14y=84$

$y=6$

PTS: 6 REF: 061038ge STA: G.G.39 TOP: Special Parallelograms

203 ANS: 3

The diagonals of an isosceles trapezoid are congruent. $5x+3=11x-5.$

$6x=18$

$x=3$

PTS: 2 REF: fall0801ge STA: G.G.40 TOP: Trapezoids

204 ANS: 2

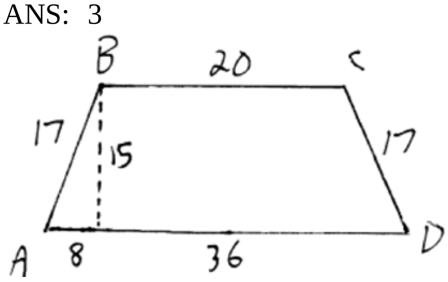
The length of the midsegment of a trapezoid is the average of the lengths of its bases. $\frac{x+30}{2}=44.$

$x+30=88$

$x=58$

PTS: 2 REF: 011001ge STA: G.G.40 TOP: Trapezoids

205 ANS: 3



$\frac{36-20}{2}=8.$ $\sqrt{17^2-8^2}=15$

PTS: 2 REF: 061016ge STA: G.G.40 TOP: Trapezoids

206 ANS: 4

$$\sqrt{25^2 - \left(\frac{26-12}{2}\right)^2} = 24$$

PTS: 2 REF: 011219ge STA: G.G.40 TOP: Trapezoids

207 ANS: 4 PTS: 2 REF: 061008ge STA: G.G.40
TOP: Trapezoids

208 ANS:
70. $3x + 5 + 3x + 5 + 2x + 2x = 180$

$$10x + 10 = 360$$

$$10x = 350$$

$$x = 35$$

$$2x = 70$$

PTS: 2 REF: 081029ge STA: G.G.40 TOP: Trapezoids

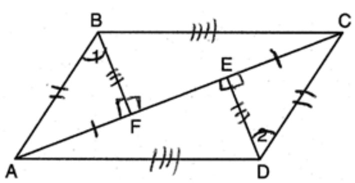
209 ANS:
3. The non-parallel sides of an isosceles trapezoid are congruent. $2x + 5 = 3x + 2$

$$x = 3$$

PTS: 2 REF: 080929ge STA: G.G.40 TOP: Trapezoids

210 ANS: 1 PTS: 2 REF: 080918ge STA: G.G.41
TOP: Special Quadrilaterals

211 ANS:



$\overline{FE} \cong \overline{FE}$ (Reflexive Property); $\overline{AE} - \overline{FE} \cong \overline{FC} - \overline{EF}$ (Line Segment Subtraction Theorem); $\overline{AF} \cong \overline{CE}$ (Substitution); $\angle BFA \cong \angle DEC$ (All right angles are congruent); $\triangle BFA \cong \triangle DEC$ (AAS); $\overline{AB} \cong \overline{CD}$ and $\overline{BF} \cong \overline{DE}$ (CPCTC); $\angle BFC \cong \angle DEA$ (All right angles are congruent); $\triangle BFC \cong \triangle DEA$ (SAS); $\overline{AD} \cong \overline{CB}$ (CPCTC); *ABCD* is a parallelogram (opposite sides of quadrilateral *ABCD* are congruent)

PTS: 6 REF: 080938ge STA: G.G.41 TOP: Special Quadrilaterals

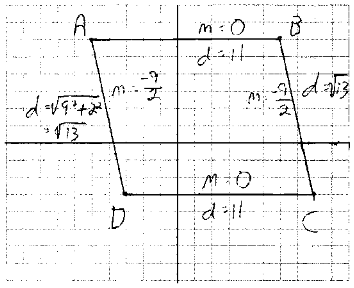
212 ANS:
$\overline{JK} \cong \overline{LM}$ because opposite sides of a parallelogram are congruent. $\overline{LM} \cong \overline{LN}$ because of the Isosceles Triangle Theorem. $\overline{LM} \cong \overline{JM}$ because of the transitive property. *JKLM* is a rhombus because all sides are congruent.

PTS: 4 REF: 011036ge STA: G.G.41 TOP: Special Quadrilaterals

213 ANS: 2
Adjacent sides of a rectangle are perpendicular and have opposite and reciprocal slopes.

PTS: 2 REF: 061028ge STA: G.G.69 TOP: Quadrilaterals in the Coordinate Plane

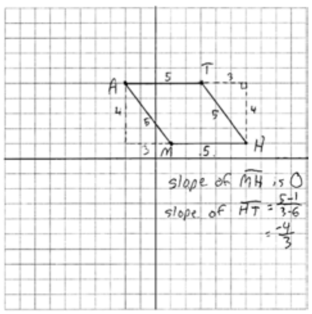
214 ANS:



$\overline{AB} \parallel \overline{CD}$ and $\overline{AD} \parallel \overline{CB}$ because their slopes are equal. *ABCD* is a parallelogram because opposite side are parallel. $\overline{AB} \neq \overline{BC}$. *ABCD* is not a rhombus because all sides are not equal. $\overline{AB} \sim \perp \overline{BC}$ because their slopes are not opposite reciprocals. *ABCD* is not a rectangle because $\angle ABC$ is not a right angle.

PTS: 4 REF: 081038ge STA: G.G.69 TOP: Quadrilaterals in the Coordinate Plane

215 ANS:



The length of each side of quadrilateral is 5. Since each side is congruent, quadrilateral *MATH* is a rhombus. The slope of $\overline{MH}$ is 0 and the slope of $\overline{HT}$ is $-\frac{4}{3}$. Since the slopes are not negative reciprocals, the sides are not perpendicular and do not form rights angles. Since adjacent sides are not perpendicular, quadrilateral *MATH* is not a square.

PTS: 6 REF: 011138ge STA: G.G.69 TOP: Quadrilaterals in the Coordinate Plane

Geometry Regents Exam Questions by Performance Indicator: Topic
Answer Section

216 ANS:
$m_{\overline{AB}} = \left(\frac{-6+2}{2}, \frac{-2+8}{2}\right) = D(2,3)$ $m_{\overline{BC}} = \left(\frac{2+6}{2}, \frac{8+-2}{2}\right) = E(4,3)$ $F(0,-2)$. To prove that *ADEF* is a parallelogram, show that both pairs of opposite sides of the parallelogram are parallel by showing the opposite sides have the same slope: $\text{m}_{\overline{AD}} = \frac{3--2}{-2--6} = \frac{5}{4}$ $\overline{AF} \parallel \overline{DE}$ because all horizontal lines have the same slope. *ADEF*

$$\text{m}_{FE} = \frac{3--2}{4-0} = \frac{5}{4}$$

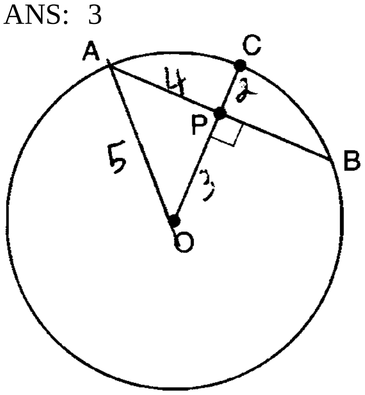
is not a rhombus because not all sides are congruent. $AD = \sqrt{5^2+4^2} = \sqrt{41}$ $AF = 6$

PTS: 6 REF: 081138ge STA: G.G.69 TOP: Quadrilaterals in the Coordinate Plane

217 ANS: 3
Because $\overline{OC}$ is a radius, its length is 5. Since $CE = 2$ $OE = 3$. $\triangle EDO$ is a 3-4-5 triangle. If $ED = 4$, $BD = 8$.

PTS: 2 REF: fall0811ge STA: G.G.49 TOP: Chords

218 ANS: 3



PTS: 2 REF: 011112ge STA: G.G.49 TOP: Chords

219 ANS: 4
$\sqrt{6^2-2^2} = \sqrt{32} = \sqrt{16}\sqrt{2} = 4\sqrt{2}$

PTS: 2 REF: 081124ge STA: G.G.49 TOP: Chords

220 ANS:
$EO = 6$. $CE = \sqrt{10^2-6^2} = 8$

PTS: 2 REF: 011234ge STA: G.G.49 TOP: Chords

221 ANS: 1
The closer a chord is to the center of a circle, the longer the chord.

PTS: 2 REF: 011005ge STA: G.G.49 TOP: Chords

222 ANS: 2

Parallel chords intercept congruent arcs. $m\overset{\frown}{AD} = m\overset{\frown}{BC} = 60$. $m\angle CDB = \frac{1}{2} m\overset{\frown}{BC} = 30$.

PTS: 2 REF: 060906ge STA: G.G.52 TOP: Chords

223 ANS: 2

Parallel chords intercept congruent arcs. $m\overset{\frown}{AC} = m\overset{\frown}{BD} = 30$. $180 - 30 - 30 = 120$.

PTS: 2 REF: 080904ge STA: G.G.52 TOP: Chords

224 ANS:

$2x - 20 = x + 20$. $m\overset{\frown}{AB} = x + 20 = 40 + 20 = 60$

$x = 40$

PTS: 2 REF: 011229ge STA: G.G.52 TOP: Chords

225 ANS: 1

Parallel lines intercept congruent arcs.

PTS: 2 REF: 061001ge STA: G.G.52 TOP: Chords

226 ANS: 1

Parallel lines intercept congruent arcs.

PTS: 2 REF: 061105ge STA: G.G.52 TOP: Chords

227 ANS:

$\frac{180 - 80}{2} = 50$

PTS: 2 REF: 081129ge STA: G.G.52 TOP: Chords

228 ANS: 3 PTS: 2 REF: 080928ge STA: G.G.50
TOP: Tangents KEY: common tangency

229 ANS: 4 PTS: 2 REF: fall0824ge STA: G.G.50
TOP: Tangents KEY: common tangency

230 ANS: 1 PTS: 2 REF: 061013ge STA: G.G.50
TOP: Tangents KEY: point of tangency

231 ANS: 1 PTS: 2 REF: 081012ge STA: G.G.50
TOP: Tangents KEY: two tangents

232 ANS:

18. If the ratio of *TA* to *AC* is 1:3, the ratio of *TE* to *ES* is also 1:3. $x + 3x = 24$. $3(6) = 18$.

$x = 6$

PTS: 4 REF: 060935ge STA: G.G.50 TOP: Tangents
KEY: common tangency

233 ANS: 4

$\sqrt{25^2 - 7^2} = 24$

PTS: 2 REF: 081105ge STA: G.G.50 TOP: Tangents
KEY: point of tangency

234 ANS: 2

$\frac{87+35}{2} = \frac{122}{2} = 61$

PTS: 2 REF: 011015ge STA: G.G.51 TOP: Arcs Determined by Angles
KEY: inside circle

235 ANS: 3

$\frac{36+20}{2} = 28$

PTS: 2 REF: 061019ge STA: G.G.51 TOP: Arcs Determined by Angles
KEY: inside circle

236 ANS: 2

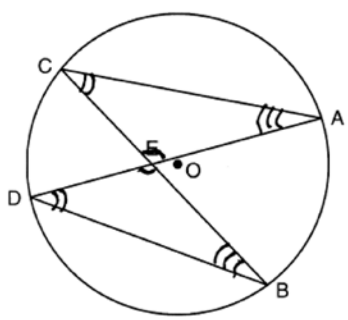
$\frac{50+x}{2} = 34$

$50 + x = 68$

$x = 18$

PTS: 2 REF: 011214ge STA: G.G.51 TOP: Arcs Determined by Angles
KEY: inside circle

237 ANS: 2



PTS: 2 REF: 061026GE STA: G.G.51 TOP: Arcs Determined by Angles
KEY: inscribed

238 ANS: 4 PTS: 2 REF: 011124ge STA: G.G.51
TOP: Arcs Determined by Angles KEY: inscribed

239 ANS:

$\angle D$, $\angle G$ and 24° or $\angle E$, $\angle F$ and 84°. $m\overset{\frown}{FE} = \frac{2}{15} \times 360 = 48$. Since the chords forming $\angle D$ and $\angle G$ are intercepted by $\overset{\frown}{FE}$, their measure is 24°. $m\overset{\frown}{GD} = \frac{7}{15} \times 360 = 168$. Since the chords forming $\angle E$ and $\angle F$ are intercepted by $\overset{\frown}{GD}$, their measure is 84°.

PTS: 4 REF: fall0836ge STA: G.G.51 TOP: Arcs Determined by Angles
KEY: inscribed

240 ANS: 2

$$\frac{140 - \overline{RS}}{2} = 40$$
$$140 - \overline{RS} = 80$$
$$\overline{RS} = 60$$

PTS: 2 REF: 081025ge STA: G.G.51 TOP: Arcs Determined by Angles
KEY: outside circle

241 ANS:

30. $3x + 4x + 5x = 360$. $m\overset{\frown}{LN} : m\overset{\frown}{NK} : m\overset{\frown}{KL} = 90:120:150$. $\frac{150 - 90}{2} = 30$

$x = 20$

PTS: 4 REF: 061136ge STA: G.G.51 TOP: Arcs Determined by Angles
KEY: outside circle

242 ANS: 2

$$x^2 = 3(x + 18)$$
$$x^2 - 3x - 54 = 0$$
$$(x - 9)(x + 6) = 0$$
$$x = 9$$

PTS: 2 REF: fall0817ge STA: G.G.53 TOP: Segments Intercepted by Circle
KEY: tangent and secant

243 ANS: 3

$$4(x + 4) = 8^2$$
$$4x + 16 = 64$$
$$x = 12$$

PTS: 2 REF: 060916ge STA: G.G.53 TOP: Segments Intercepted by Circle
KEY: tangent and secant

244 ANS: 4

$x^2 = (4+5)\times 4$

$x^2 = 36$

$x = 6$

PTS: 2 REF: 011008ge STA: G.G.53 TOP: Segments Intercepted by Circle
KEY: tangent and secant

245 ANS: 4

$4(x+4) = 8^2$

$4x + 16 = 64$

$4x = 48$

$x = 12$

PTS: 2 REF: 061117ge STA: G.G.53 TOP: Segments Intercepted by Circle
KEY: tangent and secant

246 ANS: 2

$(d+4)4 = 12(6)$

$4d + 16 = 72$

$d = 14$

$r = 7$

PTS: 2 REF: 061023ge STA: G.G.53 TOP: Segments Intercepted by Circle
KEY: two secants

247 ANS: 2

$4(4x-3) = 3(2x+8)$

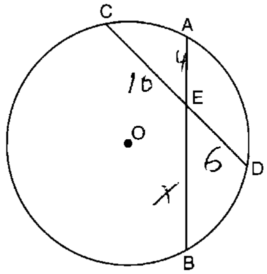
$16x - 12 = 6x + 24$

$10x = 36$

$x = 3.6$

PTS: 2 REF: 080923ge STA: G.G.53 TOP: Segments Intercepted by Circle
KEY: two chords

248 ANS: 1



$4x = 6 \cdot 10$

$x = 15$

PTS: 2 REF: 081017ge STA: G.G.53 TOP: Segments Intercepted by Circle
KEY: two chords

249 ANS:

$x^2 = 9 \cdot 8$

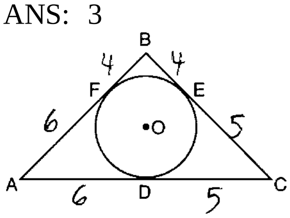
$x = \sqrt{72}$

$x = \sqrt{36}\sqrt{2}$

$x = 6\sqrt{2}$

PTS: 2 REF: 011132ge STA: G.G.53 TOP: Segments Intercepted by Circle
KEY: two chords

250 ANS: 3



PTS: 2 REF: 011101ge STA: G.G.53 TOP: Segments Intercepted by Circle
KEY: two tangents

251 ANS: 4 PTS: 2 REF: 011208ge STA: G.G.53
TOP: Segments Intercepted by Circle KEY: two tangents

252 ANS: 1

$M_x = \frac{-2+6}{2} = 2$. $M_y = \frac{3+3}{2} = 3$. The center is $(2,3)$. $d = \sqrt{(-2-6)^2 + (3-3)^2} = \sqrt{64+0} = 8$. If the diameter is 8, the radius is 4 and $r^2 = 16$.

PTS: 2 REF: fall0820ge STA: G.G.71 TOP: Equations of Circles

253 ANS: 2 PTS: 2 REF: 060910ge STA: G.G.71
TOP: Equations of Circles

254 ANS: 3 PTS: 2 REF: 011010ge STA: G.G.71
TOP: Equations of Circles

255 ANS: 3 PTS: 2 REF: 011116ge STA: G.G.71
TOP: Equations of Circles

256 ANS: 4 PTS: 2 REF: 081110ge STA: G.G.71
TOP: Equations of Circles
257 ANS: 4 PTS: 2 REF: 011212ge STA: G.G.71
TOP: Equations of Circles
258 ANS:
Midpoint: $\left(\dfrac{-4+4}{2}, \dfrac{2+(-4)}{2}\right) = (0,-1)$. Distance: $d = \sqrt{(-4-4)^2 + (2-(-4))^2} = \sqrt{100} = 10$

$r = 5$

$r^2 = 25$

$x^2 + (y+1)^2 = 25$

PTS: 4 REF: 061037ge STA: G.G.71 TOP: Equations of Circles
259 ANS: 2 PTS: 2 REF: 080921ge STA: G.G.72
TOP: Equations of Circles
260 ANS: 4
The radius is 4. $r^2 = 16$.

PTS: 2 REF: 061014ge STA: G.G.72 TOP: Equations of Circles
261 ANS: 1 PTS: 2 REF: 061110ge STA: G.G.72
TOP: Equations of Circles
262 ANS: 1 PTS: 2 REF: 011220ge STA: G.G.72
TOP: Equations of Circles
263 ANS:
$(x+1)^2 + (y-2)^2 = 36$

PTS: 2 REF: 081034ge STA: G.G.72 TOP: Equations of Circles
264 ANS:
$(x-5)^2 + (y+4)^2 = 36$

PTS: 2 REF: 081132ge STA: G.G.72 TOP: Equations of Circles
265 ANS: 3 PTS: 2 REF: fall0814ge STA: G.G.73
TOP: Equations of Circles
266 ANS: 1 PTS: 2 REF: 080911ge STA: G.G.73
TOP: Equations of Circles
267 ANS: 1 PTS: 2 REF: 081009ge STA: G.G.73
TOP: Equations of Circles
268 ANS: 4 PTS: 2 REF: 061114ge STA: G.G.73
TOP: Equations of Circles
269 ANS: 2 PTS: 2 REF: 011203ge STA: G.G.73
TOP: Equations of Circles
270 ANS: 4 PTS: 2 REF: 060922ge STA: G.G.73
TOP: Equations of Circles
271 ANS: 1 PTS: 2 REF: 060920ge STA: G.G.74
TOP: Graphing Circles

272 ANS: 2 PTS: 2 REF: 011020ge STA: G.G.74
TOP: Graphing Circles
273 ANS: 2 PTS: 2 REF: 011125ge STA: G.G.74
TOP: Graphing Circles
274 ANS:
4. $l_1 w_1 h_1 = l_2 w_2 h_2$

$10 \times 2 \times h = 5 \times w_2 \times h$

$20 = 5w_2$

$w_2 = 4$

PTS: 2 REF: 011030ge STA: G.G.11 TOP: Volume
275 ANS: 3 PTS: 2 REF: 081123ge STA: G.G.12
TOP: Volume
276 ANS:
9.1. $(11)(8)h = 800$

$h \approx 9.1$

PTS: 2 REF: 061131ge STA: G.G.12 TOP: Volume
277 ANS: 1
$3x^2 + 18x + 24$

$3(x^2 + 6x + 8)$

$3(x + 4)(x + 2)$

PTS: 2 REF: fall0815ge STA: G.G.12 TOP: Volume
278 ANS: 2 PTS: 2 REF: 011215ge STA: G.G.12
TOP: Volume
279 ANS:
2016. $V = \frac{1}{3}Bh = \frac{1}{3}s^2 h = \frac{1}{3}12^2 \cdot 42 = 2016$

PTS: 2 REF: 080930ge STA: G.G.13 TOP: Volume
280 ANS:
18. $V = \frac{1}{3}Bh = \frac{1}{3}lwh$

$288 = \frac{1}{3} \cdot 8 \cdot 6 \cdot h$

$288 = 16h$

$18 = h$

PTS: 2 REF: 061034ge STA: G.G.13 TOP: Volume

281 ANS: 3
$V = \pi r^2 h = \pi \cdot 6^2 \cdot 27 = 972\pi$

PTS: 2 REF: 011027ge STA: G.G.14 TOP: Volume

282 ANS: 2
$V = \pi r^2 h = \pi \cdot 6^2 \cdot 15 = 540\pi$

PTS: 2 REF: 011117ge STA: G.G.14 TOP: Volume

283 ANS: 1

$$V = \pi r^2 h$$
$$1000 = \pi r^2 \cdot 8$$
$$r^2 = \frac{1000}{8\pi}$$
$$r \approx 6.3$$

PTS: 2 REF: 080926ge STA: G.G.14 TOP: Volume

284 ANS:
22.4.

$$V = \pi r^2 h$$
$$12566.4 = \pi r^2 \cdot 8$$
$$r^2 = \frac{12566.4}{8\pi}$$
$$r \approx 22.4$$

PTS: 2 REF: fall0833ge STA: G.G.14 TOP: Volume

285 ANS: 4
$L = 2\pi rh = 2\pi \cdot 5 \cdot 11 \approx 345.6$

PTS: 2 REF: 061006ge STA: G.G.14 TOP: Volume

286 ANS:

$$V = \pi r^2 h \quad . \quad L = 2\pi rh = 2\pi \cdot 5\sqrt{2} \cdot 12 \approx 533.1$$
$$600\pi = \pi r^2 \cdot 12$$
$$50 = r^2$$
$$\sqrt{25}\sqrt{2} = r$$
$$5\sqrt{2} = r$$

PTS: 4 REF: 011236ge STA: G.G.14 TOP: Volume

287 ANS: 1
$V = \frac{1}{3}\pi r^2 h = \frac{1}{3}\pi \cdot 4^2 \cdot 12 \approx 201$

PTS: 2 REF: 060921ge STA: G.G.15 TOP: Volume

288 ANS:
375π $L = \pi r l = \pi(15)(25) = 375\pi$

PTS: 2 REF: 081030ge STA: G.G.15 TOP: Lateral Area

289 ANS: 2
$V = \frac{4}{3}\pi r^3 = \frac{4}{3}\pi \cdot 3^3 = 36\pi$

PTS: 2 REF: 061112ge STA: G.G.16 TOP: Volume and Surface Area

290 ANS:
$V = \frac{4}{3}\pi \cdot 9^3 = 972\pi$

PTS: 2 REF: 081131ge STA: G.G.16 TOP: Surface Area

291 ANS: 4
$\text{SA} = 4\pi r^2$ $V = \frac{4}{3}\pi r^3 = \frac{4}{3}\pi \cdot 6^3 = 288\pi$

$144\pi = 4\pi r^2$

$36 = r^2$

$6 = r$

PTS: 2 REF: 081020ge STA: G.G.16 TOP: Surface Area

292 ANS:
452. $SA = 4\pi r^2 = 4\pi \cdot 6^2 = 144\pi \approx 452$

PTS: 2 REF: 061029ge STA: G.G.16 TOP: Surface Area

293 ANS:
20. $5x + 10 = 4x + 30$

$x = 20$

PTS: 2 REF: 060934ge STA: G.G.45 TOP: Similarity
KEY: basic

294 ANS: 4
$180 - (50 + 30) = 100$

PTS: 2 REF: 081006ge STA: G.G.45 TOP: Similarity
KEY: basic

295 ANS: 3
$\frac{7x}{4} = \frac{7}{x}$. $7(2) = 14$

$7x^2 = 28$

$x = 2$

PTS: 2 REF: 061120ge STA: G.G.45 TOP: Similarity
KEY: basic

296 ANS:
2

$$\frac{x+2}{x} = \frac{x+6}{4}$$

$$x^2 + 6x = 4x + 8$$

$$x^2 + 2x - 8 = 0$$

$$(x+4)(x-2) = 0$$

$$x = 2$$

PTS: 4 REF: 081137ge STA: G.G.45 TOP: Similarity
KEY: basic

297 ANS: 4
Corresponding angles of similar triangles are congruent.

PTS: 2 REF: fall0826ge STA: G.G.45 TOP: Similarity
KEY: perimeter and area

298 ANS: 2
Because the triangles are similar, $\frac{m\angle A}{m\angle D} = 1$

PTS: 2 REF: 011022ge STA: G.G.45 TOP: Similarity
KEY: perimeter and area

299 ANS: 4 PTS: 2 REF: 081023ge STA: G.G.45
TOP: Similarity KEY: perimeter and area

300 ANS: 1
$\overline{AB} = 10$ since $\triangle ABC$ is a 6-8-10 triangle. $6^2 = 10x$

$$3.6 = x$$

PTS: 2 REF: 060915ge STA: G.G.47 TOP: Similarity
KEY: leg

301 ANS: 4
Let $\overline{AD} = x$. $36x = 12^2$

$$x = 4$$

PTS: 2 REF: 080922ge STA: G.G.47 TOP: Similarity
KEY: leg

302 ANS: 4

$6^2 = x(x+5)$

$36 = x^2 + 5x$

$0 = x^2 + 5x - 36$

$0 = (x+9)(x-4)$

$x = 4$

PTS: 2 REF: 011123ge STA: G.G.47 TOP: Similarity
KEY: leg

303 ANS: 1

$x^2 = 7(16-7)$

$x^2 = 63$

$x = \sqrt{9}\sqrt{7}$

$x = 3\sqrt{7}$

PTS: 2 REF: 061128ge STA: G.G.47 TOP: Similarity
KEY: altitude

304 ANS: 4

$x \cdot 4x = 6^2$. $PQ = 4x + x = 5x = 5(3) = 15$

$4x^2 = 36$

$x = 3$

PTS: 2 REF: 011227ge STA: G.G.47 TOP: Similarity
KEY: leg

305 ANS:

2.4. $5a = 4^2$ $5b = 3^2$ $h^2 = ab$

$a = 3.2$ $b = 1.8$ $h^2 = 3.2 \cdot 1.8$

$h = \sqrt{5.76} = 2.4$

PTS: 4 REF: 081037ge STA: G.G.47 TOP: Similarity
KEY: altitude

306 ANS:

$2\sqrt{3}$. $x^2 = 3 \cdot 4$

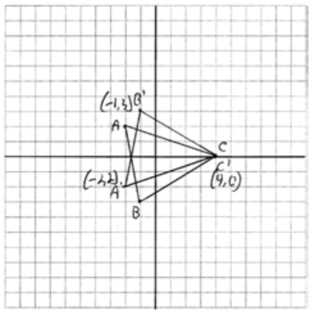
$x = \sqrt{12} = 2\sqrt{3}$

PTS: 2 REF: fall0829ge STA: G.G.47 TOP: Similarity
KEY: altitude

307 ANS:
$R'(-3,-2)$, $S'(-4,4)$, and $T'(2,2)$.

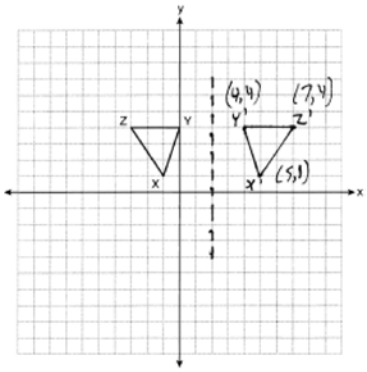
PTS: 2 REF: 011232ge STA: G.G.54 TOP: Rotations

308 ANS:



PTS: 2 REF: 011130ge STA: G.G.54 TOP: Reflections
KEY: grids

309 ANS:



PTS: 2 REF: 061032ge STA: G.G.54 TOP: Reflections
KEY: grids

310 ANS: 3 PTS: 2 REF: 060905ge STA: G.G.54
TOP: Reflections KEY: basic

311 ANS: 2 PTS: 2 REF: 081108ge STA: G.G.54
TOP: Reflections KEY: basic

312 ANS: 1 PTS: 2 REF: 081113ge STA: G.G.54
TOP: Reflections KEY: basic

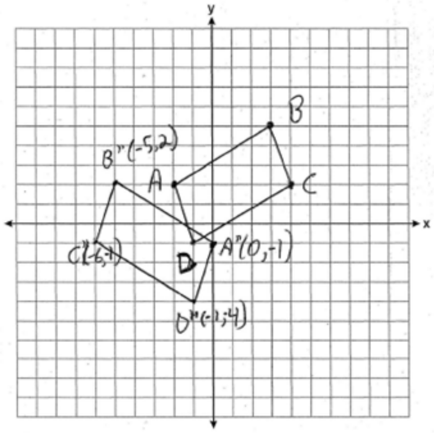
313 ANS: 3
$-5+3=-2 \qquad 2+-4=-2$

PTS: 2 REF: 011107ge STA: G.G.54 TOP: Translations

314 ANS: 1
$(x,y) \rightarrow (x+3,y+1)$

PTS: 2 REF: fall0803ge STA: G.G.54 TOP: Translations

315 ANS:



PTS: 4 REF: 060937ge STA: G.G.54 TOP: Compositions of Transformations
KEY: grids

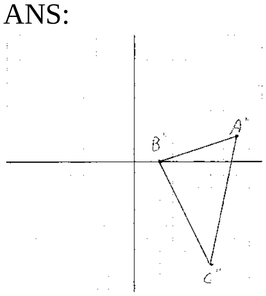
316 ANS: 1
$A'(2,4)$

PTS: 2 REF: 011023ge STA: G.G.54 TOP: Compositions of Transformations
KEY: basic

317 ANS: 3
$(3,-2) \rightarrow (2,3) \rightarrow (8,12)$

PTS: 2 REF: 011126ge STA: G.G.54 TOP: Compositions of Transformations
KEY: basic

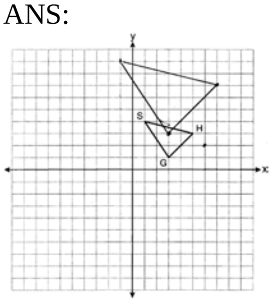
318 ANS:



$A''(8,2),\ B''(2,0),\ C''(6,-8)$

PTS: 4 REF: 081036ge STA: G.G.58 TOP: Compositions of Transformations

319 ANS:



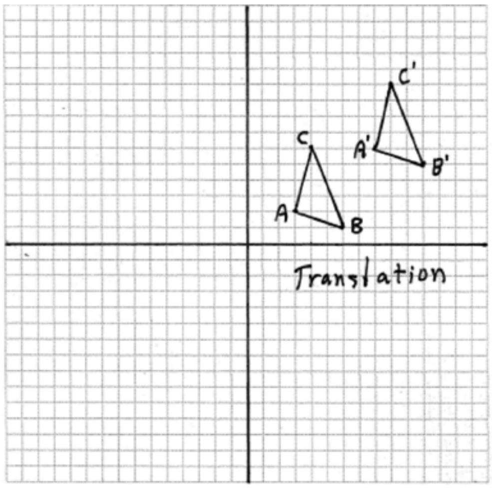
$G''(3,3), H''(7,7), S''(-1,9)$

PTS: 4 REF: 081136ge STA: G.G.58 TOP: Compositions of Transformations

320 ANS: 1
After the translation, the coordinates are $A'(-1,5)$ and $B'(3,4)$. After the dilation, the coordinates are $A''(-2,10)$ and $B''(6,8)$.

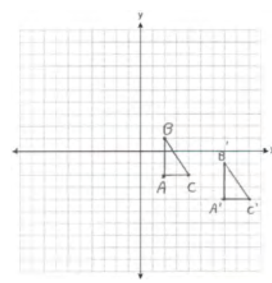
PTS: 2 REF: fall0823ge STA: G.G.58 TOP: Compositions of Transformations

321 ANS:



PTS: 2 REF: fall0830ge STA: G.G.55 TOP: Properties of Transformations

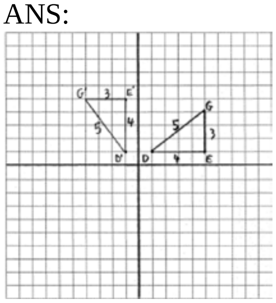
322 ANS:



$A'(7,-4), B'(7,-1). C'(9,-4)$. The areas are equal because translations preserve distance.

PTS: 4 REF: 011235ge STA: G.G.55 TOP: Properties of Transformations

323 ANS:



$D'(-1,1)$, $E'(-1,5)$, $G'(-4,5)$

PTS: 4 REF: 080937ge STA: G.G.55 TOP: Properties of Transformations

324 ANS: 2 PTS: 2 REF: 011003ge STA: G.G.55
TOP: Properties of Transformations

325 ANS: 1 PTS: 2 REF: 061005ge STA: G.G.55
TOP: Properties of Transformations

326 ANS: 2 PTS: 2 REF: 081015ge STA: G.G.55
TOP: Properties of Transformations
327 ANS: 1 PTS: 2 REF: 011102ge STA: G.G.55
TOP: Properties of Transformations
328 ANS: 3 PTS: 2 REF: 081104ge STA: G.G.55
TOP: Properties of Transformations
329 ANS: 2 PTS: 2 REF: 011211ge STA: G.G.55
TOP: Properties of Transformations
330 ANS: 3 PTS: 2 REF: 081021ge STA: G.G.57
TOP: Properties of Transformations
331 ANS: 1
Translations and reflections do not affect distance.

PTS: 2 REF: 080908ge STA: G.G.59 TOP: Properties of Transformations
332 ANS: 2 PTS: 2 REF: 061126ge STA: G.G.59
TOP: Properties of Transformations
333 ANS:
36, because a dilation does not affect angle measure. 10, because a dilation does affect distance.

PTS: 4 REF: 011035ge STA: G.G.59 TOP: Properties of Transformations
334 ANS: 1 PTS: 2 REF: 060903ge STA: G.G.56
TOP: Identifying Transformations
335 ANS: 4 PTS: 2 REF: 080915ge STA: G.G.56
TOP: Identifying Transformations
336 ANS: 2 PTS: 2 REF: 011006ge STA: G.G.56
TOP: Identifying Transformations
337 ANS: 4 PTS: 2 REF: 061015ge STA: G.G.56
TOP: Identifying Transformations
338 ANS: 4 PTS: 2 REF: 061018ge STA: G.G.56
TOP: Identifying Transformations
339 ANS: 3 PTS: 2 REF: 061122ge STA: G.G.56
TOP: Identifying Transformations
340 ANS:
Yes. A reflection is an isometry.

PTS: 2 REF: 061132ge STA: G.G.56 TOP: Identifying Transformations
341 ANS: 3 PTS: 2 REF: 060908ge STA: G.G.60
TOP: Identifying Transformations
342 ANS: 2
A dilation affects distance, not angle measure.

PTS: 2 REF: 080906ge STA: G.G.60 TOP: Identifying Transformations
343 ANS: 4 PTS: 2 REF: 061103ge STA: G.G.60
TOP: Identifying Transformations
344 ANS: 4 PTS: 2 REF: fall0818ge STA: G.G.61
TOP: Analytical Representations of Transformations

345 ANS: 4 PTS: 2 REF: fall0802ge STA: G.G.24
TOP: Negations

346 ANS: 3 PTS: 2 REF: 080924ge STA: G.G.24
TOP: Negations

347 ANS: 2 PTS: 2 REF: 061002ge STA: G.G.24
TOP: Negations

348 ANS: 1 PTS: 2 REF: 011213ge STA: G.G.24
TOP: Negations

349 ANS:
The medians of a triangle are not concurrent. False.

PTS: 2 REF: 061129ge STA: G.G.24 TOP: Negations

350 ANS: 4
Median $\overline{BF}$ bisects $\overline{AC}$ so that $\overline{CF} \cong \overline{FA}$.

PTS: 2 REF: fall0810ge STA: G.G.24 TOP: Statements

351 ANS: 4 PTS: 2 REF: 011118ge STA: G.G.25
TOP: Compound Statements KEY: general

352 ANS: 4 PTS: 2 REF: 081101ge STA: G.G.25
TOP: Compound Statements KEY: conjunction

353 ANS:
True. The first statement is true and the second statement is false. In a disjunction, if either statement is true, the disjunction is true.

PTS: 2 REF: 060933ge STA: G.G.25 TOP: Compound Statements
KEY: disjunction

354 ANS: 3 PTS: 2 REF: 011028ge STA: G.G.26
TOP: Conditional Statements

355 ANS: 1 PTS: 2 REF: 061009ge STA: G.G.26
TOP: Converse and Biconditional

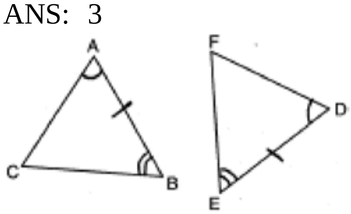
356 ANS: 3 PTS: 2 REF: 081026ge STA: G.G.26
TOP: Contrapositive

357 ANS: 4 PTS: 2 REF: 060913ge STA: G.G.26
TOP: Conditional Statements

358 ANS:
Contrapositive-If two angles of a triangle are not congruent, the sides opposite those angles are not congruent.

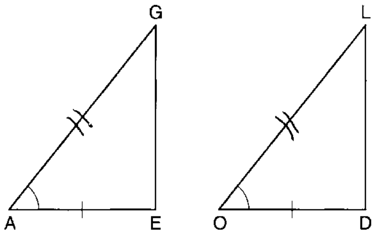
PTS: 2 REF: fall0834ge STA: G.G.26 TOP: Conditional Statements

359 ANS: 3

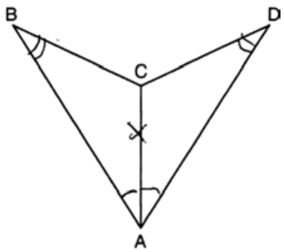


PTS: 2 REF: 060902ge STA: G.G.28 TOP: Triangle Congruency

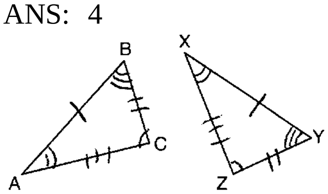
360 ANS: 2



PTS: 2 REF: 081007ge STA: G.G.28 TOP: Triangle Congruency
361 ANS: 1 PTS: 2 REF: 011122ge STA: G.G.28
TOP: Triangle Congruency
362 ANS: 4

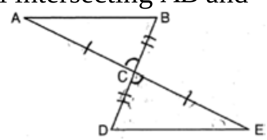


PTS: 2 REF: 081114ge STA: G.G.28 TOP: Triangle Congruency
363 ANS: 3 PTS: 2 REF: 080913ge STA: G.G.28
TOP: Triangle Congruency
364 ANS: 4



PTS: 2 REF: 081001ge STA: G.G.29 TOP: Triangle Congruency
365 ANS: 2 PTS: 2 REF: 081102ge STA: G.G.29
TOP: Triangle Congruency
366 ANS: 4 PTS: 2 REF: 080905ge STA: G.G.29
TOP: Triangle Congruency
367 ANS: 4 PTS: 2 REF: 011216ge STA: G.G.29
TOP: Triangle Congruency
368 ANS: 3 PTS: 2 REF: 061102ge STA: G.G.29
TOP: Triangle Congruency
369 ANS: 4 PTS: 2 REF: 011108ge STA: G.G.27
TOP: Angle Proofs

370 ANS:
$\overline{AC} \cong \overline{EC}$ and $\overline{DC} \cong \overline{BC}$ because of the definition of midpoint. $\angle ACB \cong \angle ECD$ because of vertical angles. $\triangle ABC \cong \triangle EDC$ because of SAS. $\angle CDE \cong \angle CBA$ because of CPCTC. $\overline{BD}$ is a transversal intersecting $\overline{AB}$ and $\overline{ED}$. Therefore $\overline{AB} \parallel \overline{DE}$ because $\angle CDE$ and $\angle CBA$ are congruent alternate interior angles.

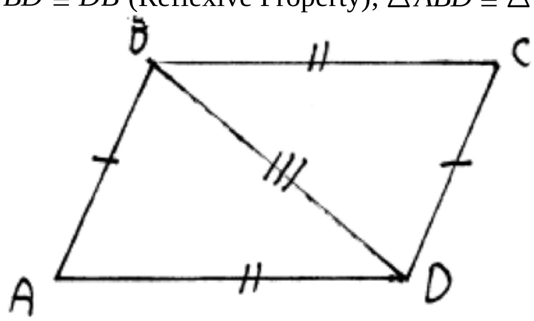


PTS: 6 REF: 060938ge STA: G.G.27 TOP: Triangle Proofs

371 ANS:
Quadrilateral *ABCD*, $\overline{AD} \cong \overline{BC}$ and $\angle DAE \cong \angle BCE$ are given. $\overline{AD} \parallel \overline{BC}$ because if two lines are cut by a transversal so that a pair of alternate interior angles are congruent, the lines are parallel. *ABCD* is a parallelogram because if one pair of opposite sides of a quadrilateral are both congruent and parallel, the quadrilateral is a parallelogram. $\overline{AE} \cong \overline{CE}$ because the diagonals of a parallelogram bisect each other. $\angle FEA \cong \angle GEC$ as vertical angles. $\triangle AEF \cong \triangle CEG$ by ASA.

PTS: 6 REF: 011238ge STA: G.G.27 TOP: Quadrilateral Proofs

372 ANS:
$\overline{BD} \cong \overline{DB}$ (Reflexive Property); $\triangle ABD \cong \triangle CDB$ (SSS); $\angle BDC \cong \angle ABD$ (CPCTC).



PTS: 4 REF: 061035ge STA: G.G.27 TOP: Quadrilateral Proofs

373 ANS:
Because $\overline{AB} \parallel \overline{DC}$, $\overset{\frown}{AD} \cong \overset{\frown}{BC}$ since parallel chords intersect congruent arcs. $\angle BDC \cong \angle ACD$ because inscribed angles that intercept congruent arcs are congruent. $\overline{AD} \cong \overline{BC}$ since congruent chords intersect congruent arcs. $\overline{DC} \cong \overline{CD}$ because of the reflexive property. Therefore, $\triangle ACD \cong \triangle BDC$ because of SAS.

PTS: 6 REF: fall0838ge STA: G.G.27 TOP: Circle Proofs

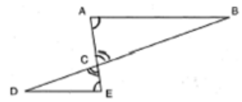
374 ANS:
$\overline{OA} \cong \overline{OB}$ because all radii are equal. $\overline{OP} \cong \overline{OP}$ because of the reflexive property. $\overline{OA} \perp \overline{PA}$ and $\overline{OB} \perp \overline{PB}$ because tangents to a circle are perpendicular to a radius at a point on a circle. $\angle PAO$ and $\angle PBO$ are right angles because of the definition of perpendicular. $\angle PAO \cong \angle PBO$ because all right angles are congruent. $\triangle AOP \cong \triangle BOP$ because of HL. $\angle AOP \cong \angle BOP$ because of CPCTC.

PTS: 6 REF: 061138ge STA: G.G.27 TOP: Circle Proofs

375 ANS: 1
$\triangle PRT$ and $\triangle SRQ$ share $\angle R$ and it is given that $\angle RPT \cong \angle RSQ$.

PTS: 2 REF: fall0821ge STA: G.G.44 TOP: Similarity Proofs

376 ANS: 2

$\angle ACB$ and $\angle ECD$ are congruent vertical angles and $\angle CAB \cong \angle CED$. 

PTS: 2 REF: 060917ge STA: G.G.44 TOP: Similarity Proofs

377 ANS: 4 PTS: 2 REF: 011019ge STA: G.G.44
TOP: Similarity Proofs

378 ANS: 3 PTS: 2 REF: 011209ge STA: G.G.44
TOP: Similarity Proofs

379 ANS:
$\angle B$ and $\angle E$ are right angles because of the definition of perpendicular lines. $\angle B \cong \angle E$ because all right angles are congruent. $\angle BFD$ and $\angle DFE$ are supplementary and $\angle ECA$ and $\angle ACB$ are supplementary because of the definition of supplementary angles. $\angle DFE \cong \angle ACB$ because angles supplementary to congruent angles are congruent. $\triangle ABC \sim \triangle DEF$ because of AA.

PTS: 4 REF: 011136ge STA: G.G.44 TOP: Similarity Proofs

380 ANS:
$\angle ACB \cong \angle AED$ is given. $\angle A \cong \angle A$ because of the reflexive property. Therefore $\triangle ABC \sim \triangle ADE$ because of AA.

PTS: 2 REF: 081133ge STA: G.G.44 TOP: Similarity Proofs