JEFFERSON MATH PROJECT REGENTS BY PERFORMANCE INDICATOR: TOPIC

NY Geometry Regents Exam Questions from Fall 2008 to August 2010 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

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

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: 3

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

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

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

5 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

6 ANS: 4

$3y + 1 = 6x + 4.$ $2y + 1 = x - 9$

$3y = 6x + 3$ $2y = x - 10$

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

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

7 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

8 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

9 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

10 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

11 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

12 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

13 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

14 ANS:

$y = \frac{2}{3}x + 1$. $\begin{aligned} 2y + 3x &= 6 \\ 2y &= -3x + 6 \\ y &= -\frac{3}{2}x + 3 \\ m &= -\frac{3}{2} \\ m_\perp &= \frac{2}{3} \end{aligned}$. $\begin{aligned} y &= mx + b \\ 5 &= \frac{2}{3}(6) + b \\ 5 &= 4 + b \\ 1 &= b \\ y &= \frac{2}{3}x + 1 \end{aligned}$

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

15 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: $\begin{aligned} y &= mx + b \\ -11 &= 2(-3) + b \\ -5 &= b \end{aligned}$

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

16 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: $\begin{aligned} y &= mx + b \\ 3 &= -2(7) + b \\ 17 &= b \end{aligned}$

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

17 ANS:

$y = -2x + 14$. The slope of $2x + y = 3$ is $\frac{-A}{B} = \frac{-2}{1} = -2$. $\begin{aligned} y &= mx + b \\ 4 &= (-2)(5) + b \\ b &= 14 \end{aligned}$.

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

18 ANS:

$y = \frac{2}{3}x - 9$. The slope of $2x - 3y = 11$ is $-\frac{A}{B} = \frac{-2}{-3} = \frac{2}{3}$. $\begin{aligned} -5 &= \left(\frac{2}{3}\right)(6) + b \\ -5 &= 4 + b \\ b &= -9 \end{aligned}$

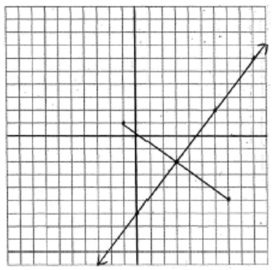
PTS: 2 REF: 080931ge STA: G.G.65 TOP: Parallel and Perpendicular Lines

19 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 $\frac{4}{3}$.

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

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

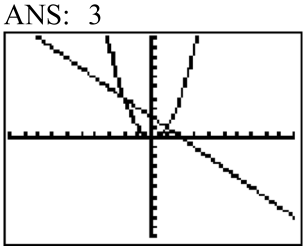


$y - y_M = m(x - x_M)$.

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

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

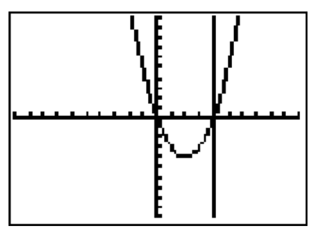
20 ANS: 3



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

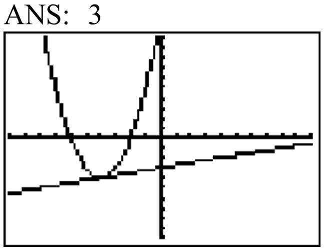
21 ANS: 1

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



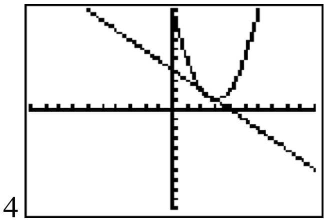
PTS: 2 REF: 060923ge STA: G.G.70 TOP: Quadratic-Linear Systems

22 ANS: 3



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

23 ANS: 4



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

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

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

$x=3 \text{ or } 2$

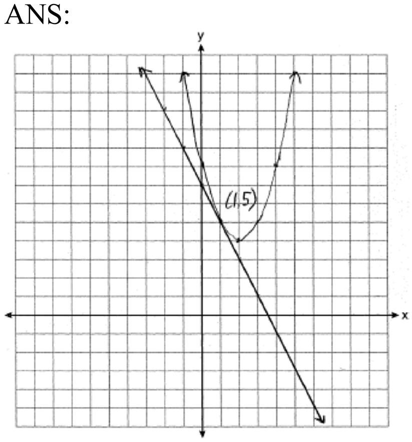
PTS: 2 REF: 080912ge STA: G.G.70 TOP: Quadratic-Linear Systems

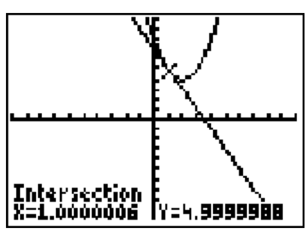
24 ANS: 3

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

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

25 ANS:





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

26 ANS: 2

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

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

27 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

28 ANS: 2
$M_x = \frac{-2+6}{2} = 2$. $M_y = \frac{-4+2}{2} = -1$

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

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

$$\begin{array}{ll} 3.5 = \frac{1+R_x}{2} & 2 = \frac{8+R_y}{2} \\ 7 = 1+R_x & 4 = 8+R_y \\ 6 = R_x & -4 = R_y \end{array}$$

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

30 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

31 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

32 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

33 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

34 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

35 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

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

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

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

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

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

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

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

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

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

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

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

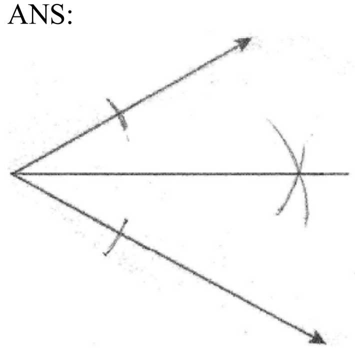
47 ANS: 3
The lateral edges of a prism are parallel.

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

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

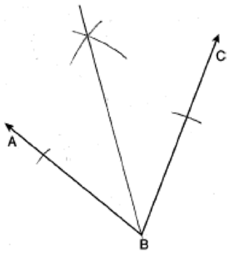
49 ANS: 4 PTS: 2 REF: 060904ge STA: G.G.13
TOP: Solids

50 ANS:

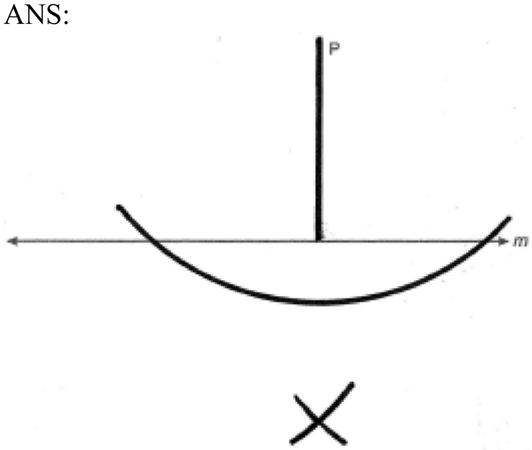


PTS: 2 REF: fall0832ge STA: G.G.17 TOP: Constructions

51 ANS: 3 PTS: 2 REF: 060925ge STA: G.G.17
TOP: Constructions
52 ANS: 3 PTS: 2 REF: 080902ge STA: G.G.17
TOP: Constructions
53 ANS:

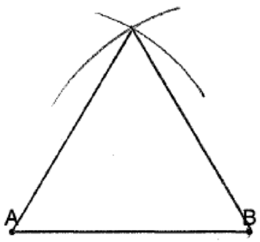


PTS: 2 REF: 080932ge STA: G.G.17 TOP: Constructions
54 ANS: 2 PTS: 2 REF: 011004ge STA: G.G.17
TOP: Constructions
55 ANS: 3 PTS: 2 REF: fall0804ge STA: G.G.18
TOP: Constructions
56 ANS: 4 PTS: 2 REF: 081005ge STA: G.G.18
TOP: Constructions
57 ANS: 1 PTS: 2 REF: fall0807ge STA: G.G.19
TOP: Constructions
58 ANS:



PTS: 2 REF: 060930ge STA: G.G.19 TOP: Constructions
59 ANS: 4 PTS: 2 REF: 011009ge STA: G.G.19
TOP: Constructions
60 ANS: 2 PTS: 2 REF: 061020ge STA: G.G.19
TOP: Constructions

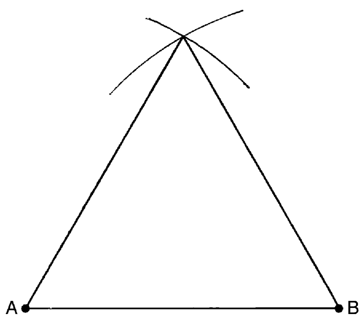
61 ANS:



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

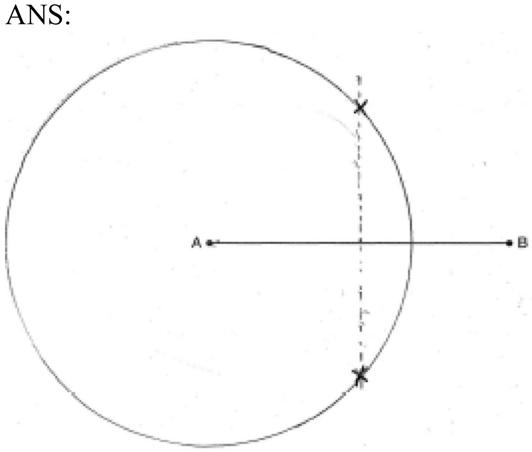
62 ANS: 1 PTS: 2 REF: 061012ge STA: G.G.20
TOP: Constructions

63 ANS:



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

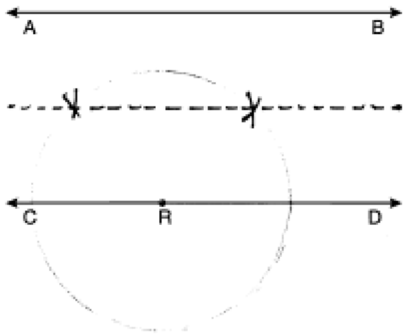
64 ANS:



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

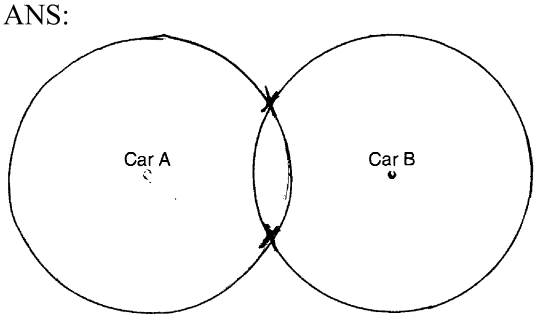
65 ANS: 2 PTS: 2 REF: 011011ge STA: G.G.22
TOP: Locus

66 ANS:



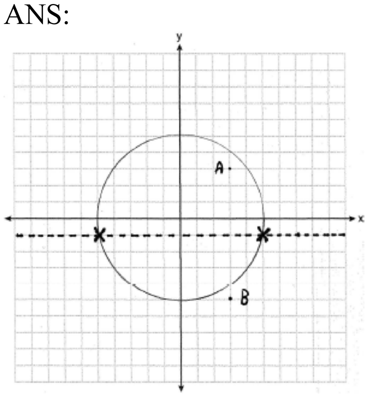
PTS: 2 REF: 061033ge STA: G.G.22 TOP: Locus

67 ANS:



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

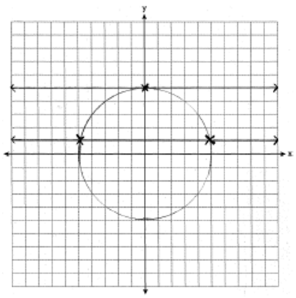
68 ANS:



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

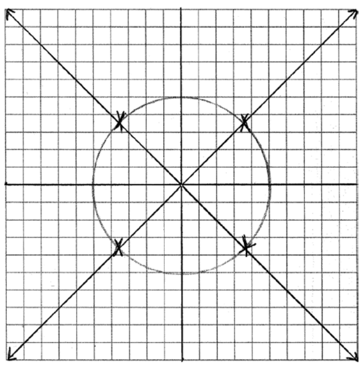
69 ANS: 4 PTS: 2 REF: 060912ge STA: G.G.23
TOP: Locus

70 ANS:



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

71 ANS:



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

72 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

73 ANS: 2 PTS: 2 REF: 061007ge STA: G.G.35

TOP: Parallel Lines and Transversals

74 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

75 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

76 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

77 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

78 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

79 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

80 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

81 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

82 ANS: 4

$180 - (40 + 40) = 100$

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

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

84 ANS:

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

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

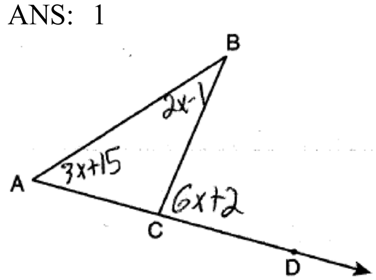
85 ANS: 3 PTS: 2 REF: 061004ge STA: G.G.31
TOP: Isosceles Triangle Theorem

86 ANS: 4

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

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

87 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

88 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

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

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

90 ANS: 2
$6+17>22$

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

91 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

92 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

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

94 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

95 ANS: 4
$\triangle ABC \sim \triangle DBE$. $\dfrac{\overline{AB}}{\overline{DB}}=\dfrac{\overline{AC}}{\overline{DE}}$

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

$x=13.5$

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

96 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

97 ANS: 2

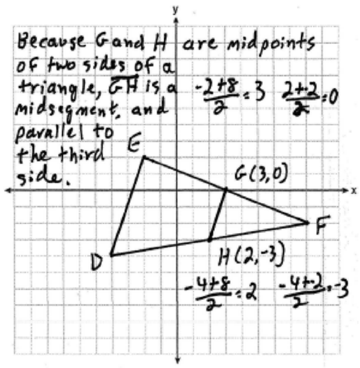
$$\frac{3}{7}=\frac{6}{x}$$

$$3x=42$$

$$x=14$$

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

98 ANS:

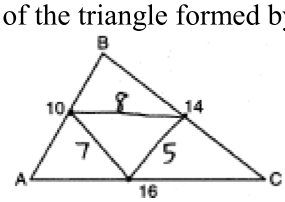


PTS: 4 REF: fall0835ge STA: G.G.42 TOP: Midsegments

99 ANS:

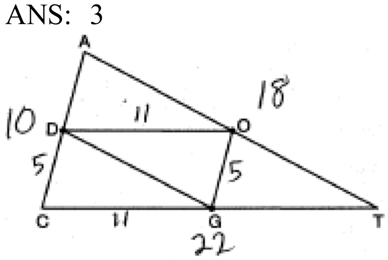
20. The sides of the triangle formed by connecting the midpoints are half the sides of the original triangle.

$5+7+8=20.$



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

100 ANS: 3



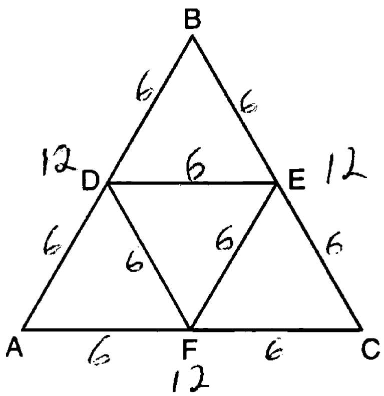
PTS: 2 REF: 080920ge STA: G.G.42 TOP: Midsegments

101 ANS:

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

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

102 ANS: 1



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

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

104 ANS: 4 PTS: 2 REF: 080925ge STA: G.G.21
TOP: Centroid, Orthocenter, Incenter and Circumcenter

105 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

106 ANS: 1 PTS: 2 REF: 081028ge STA: G.G.21
TOP: Centroid, Orthocenter, Incenter and Circumcenter

107 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

108 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

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

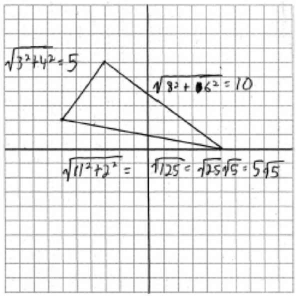
$$\begin{aligned} \overline{GC} &= 2\overline{FG} \\ \overline{GC} + \overline{FG} &= 24 \\ 2\overline{FG} + \overline{FG} &= 24 \\ 3\overline{FG} &= 24 \\ \overline{FG} &= 8 \end{aligned}$$

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

110 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

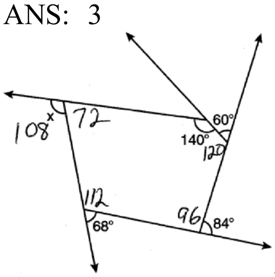
111 ANS:



$15+5\sqrt{5}$.

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

112 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

113 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

114 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

115 ANS: 1
$\angle A = \frac{(n-2)180}{n} = \frac{(5-2)180}{5} = 108\quad \angle AEB = \frac{180-108}{2} = 36$

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

116 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

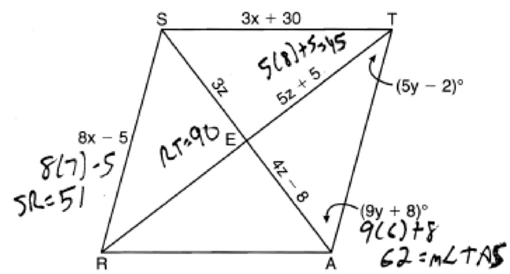
117 ANS: 1

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

118 ANS:



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

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

$x=7$ $\quad 14y=84$

$y=6$

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

119 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

120 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

121 ANS: 2

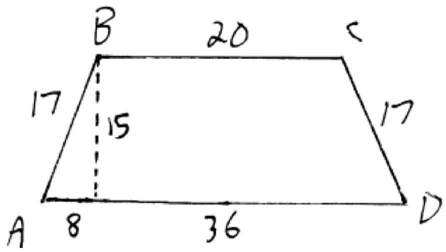
The length of the midsegment of a trapezoid is the average of the lengths of its bases. $\dfrac{x+30}{2}=44$.

$$x+30=88$$
$$x=58$$

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

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

123 ANS: 3



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

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

124 ANS:

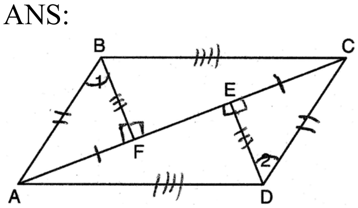
70. $3x+5+3x+5+2x+2x=180$

$$10x+10=360$$
$$10x=350$$
$$x=35$$
$$2x=70$$

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

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

126 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

127 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.

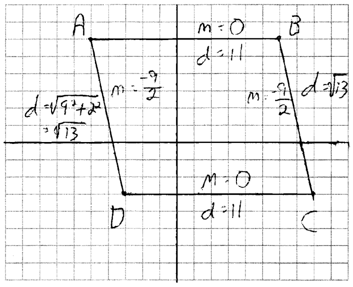
PTS: 4 REF: 011036ge STA: G.G.41 TOP: Special Quadrilaterals

128 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

129 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

130 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

131 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

132 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

133 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

134 ANS: 1

Parallel lines intercept congruent arcs.

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

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

136 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

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

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

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

140 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

141 ANS: 2

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

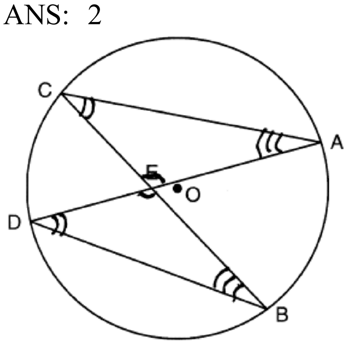
PTS: 2 REF: 011015ge STA: G.G.51 TOP: Arcs Determined by Angles
KEY: inside circle

142 ANS: 3

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

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

143 ANS: 2



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

144 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

145 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

146 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

147 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

148 ANS: 4

$$x^2 = (4+5) \times 4$$
$$x^2 = 36$$
$$x = 6$$

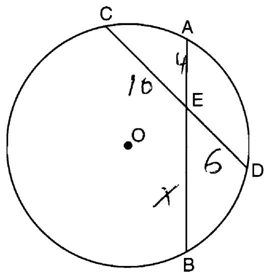
PTS: 2 REF: 011008ge STA: G.G.53 TOP: Segments Intercepted by Circle
KEY: tangent and secant

149 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

150 ANS: 1



$4x = 6 \cdot 10$

$x = 15$

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

151 ANS: 1

$M_x = \dfrac{-2+6}{2} = 2$. $M_y = \dfrac{3+3}{2} = 3$. 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

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

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

154 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: 2 REF: 061037ge STA: G.G.71 TOP: Equations of Circles

155 ANS: 2 PTS: 2 REF: 080921ge STA: G.G.72
TOP: Equations of Circles

156 ANS: 4

The radius is 4. $r^2 = 16$.

PTS: 2 REF: 061014ge STA: G.G.72 TOP: Equations of Circles

157 ANS:

$(x+1)^2 + (y-2)^2 = 36$

PTS: 2 REF: 081034ge STA: G.G.72 TOP: Equations of Circles

158 ANS: 3 PTS: 2 REF: fall0814ge STA: G.G.73
TOP: Equations of Circles

159 ANS: 4 PTS: 2 REF: 060922ge STA: G.G.73
TOP: Equations of Circles

160 ANS: 1 PTS: 2 REF: 080911ge STA: G.G.73
TOP: Equations of Circles

161 ANS: 1 PTS: 2 REF: 081009ge STA: G.G.73
TOP: Equations of Circles

162 ANS: 1 PTS: 2 REF: 060920ge STA: G.G.74
TOP: Graphing Circles

163 ANS: 2 PTS: 2 REF: 011020ge STA: G.G.74
TOP: Graphing Circles

164 ANS:

4. $l_1w_1h_1 = l_2w_2h_2$

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

$$20 = 5w_2$$

$$w_2 = 4$$

PTS: 2 REF: 011030ge STA: G.G.11 TOP: Volume

165 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

166 ANS:

2016. $V = \frac{1}{3}Bh = \frac{1}{3}s^2h = \frac{1}{3}12^2 \cdot 42 = 2016$

PTS: 2 REF: 080930ge STA: G.G.13 TOP: Volume

167 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

168 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

169 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

170 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

171 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

172 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 and Lateral Area

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

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

174 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: Volume and Surface Area

175 ANS: 4

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

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

$36 = r^2$

$6 = r$

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

176 ANS: 4

Corresponding angles of similar triangles are congruent.

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

177 ANS:

20. $5x + 10 = 4x + 30$

$x = 20$

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

178 ANS: 2

Because the triangles are similar, $\frac{\text{m}\angle A}{\text{m}\angle D} = 1$

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

179 ANS: 4

$180 - (50 + 30) = 100$

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

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

181 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

182 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

183 ANS: 4

Let $\overline{AD} = x$. $36x = 12^2$

$x = 4$

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

184 ANS:

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

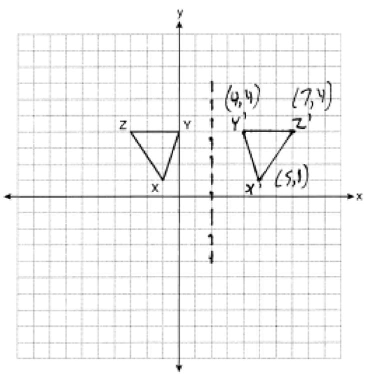
$a = 3.2$ $b = 1.8$ $h^2 = 3.2 \cdot 1.8$

$h = \sqrt{5.76} = 2.4$

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

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

186 ANS:



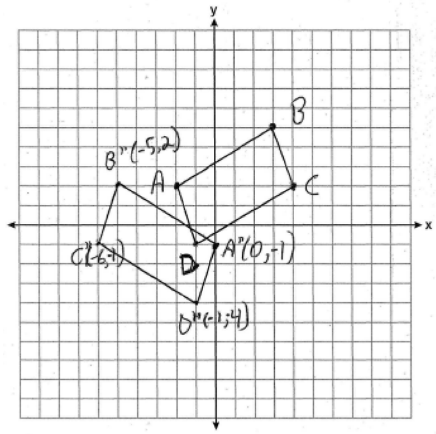
PTS: 2 REF: 061032ge STA: G.G.54 TOP: Reflections
KEY: grids

187 ANS: 1

$(x,y) \to (x+3, y+1)$

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

188 ANS:



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

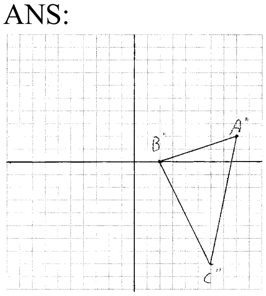
189 ANS: 1
$A'(2,4)$

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

190 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

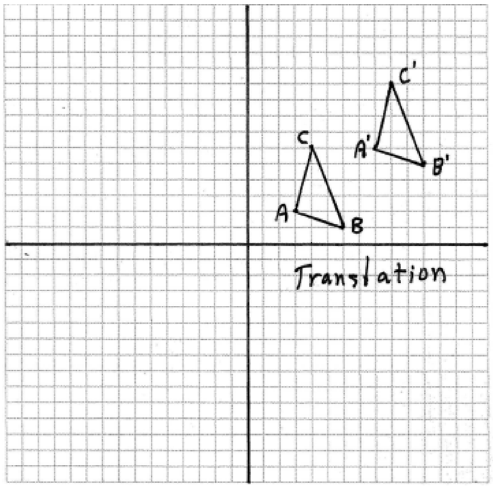
191 ANS:



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

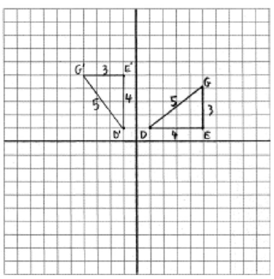
PTS: 4 REF: 081036ge STA: G.G.58 TOP: Compositions of Transformations

192 ANS:



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

193 ANS:


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

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

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

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

196 ANS: 2 PTS: 2 REF: 081015ge STA: G.G.55
TOP: Properties of Transformations

197 ANS: 3 PTS: 2 REF: 081021ge STA: G.G.57
TOP: Properties of Transformations

198 ANS: 1
Translations and reflections do not affect distance.

PTS: 2 REF: 080908ge STA: G.G.59 TOP: Properties of Transformations

199 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

200 ANS: 1 PTS: 2 REF: 060903ge STA: G.G.56
TOP: Identifying Transformations

201 ANS: 4 PTS: 2 REF: 080915ge STA: G.G.56
TOP: Identifying Transformations

202 ANS: 2 PTS: 2 REF: 011006ge STA: G.G.56
TOP: Identifying Transformations
203 ANS: 4 PTS: 2 REF: 061015ge STA: G.G.56
TOP: Identifying Transformations
204 ANS: 4 PTS: 2 REF: 061018ge STA: G.G.56
TOP: Identifying Transformations
205 ANS: 3 PTS: 2 REF: 060908ge STA: G.G.60
TOP: Identifying Transformations
206 ANS: 2
A dilation affects distance, not angle measure.

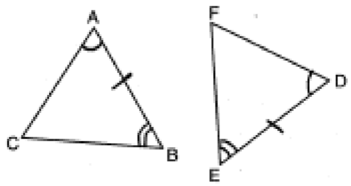
PTS: 2 REF: 080906ge STA: G.G.60 TOP: Identifying Transformations
207 ANS: 4 PTS: 2 REF: fall0818ge STA: G.G.61
TOP: Analytical Representations of Transformations
208 ANS: 4
Median $\overline{BF}$ bisects $\overline{AC}$ so that $\overline{CF} \cong \overline{FA}$.

PTS: 2 REF: fall0810ge STA: G.G.24 TOP: Statements
209 ANS: 4 PTS: 2 REF: fall0802ge STA: G.G.24
TOP: Negations
210 ANS: 3 PTS: 2 REF: 080924ge STA: G.G.24
TOP: Negations
211 ANS: 2 PTS: 2 REF: 061002ge STA: G.G.24
TOP: Negations
212 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
213 ANS:
Contrapositive-If two angles of a triangle are not congruent, the sides opposite those angles are not congruent.

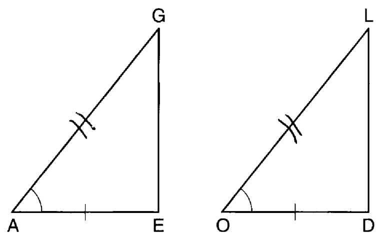
PTS: 2 REF: fall0834ge STA: G.G.26 TOP: Conditional Statements
214 ANS: 4 PTS: 2 REF: 060913ge STA: G.G.26
TOP: Conditional Statements
215 ANS: 3 PTS: 2 REF: 011028ge STA: G.G.26
TOP: Conditional Statements
216 ANS: 1 PTS: 2 REF: 061009ge STA: G.G.26
TOP: Converse
217 ANS: 3 PTS: 2 REF: 081026ge STA: G.G.26
TOP: Contrapositive
218 ANS: 3 PTS: 2 REF: 080913ge STA: G.G.28
TOP: Triangle Congruency

219 ANS: 3



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

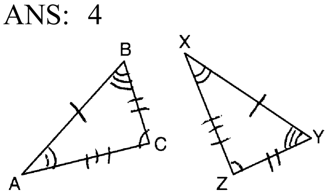
220 ANS: 2



PTS: 2 REF: 081007ge STA: G.G.28 TOP: Triangle Congruency

221 ANS: 4 PTS: 2 REF: 080905ge STA: G.G.29
TOP: Triangle Congruency

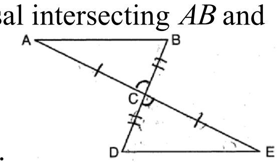
222 ANS: 4



PTS: 2 REF: 081001ge STA: G.G.29 TOP: Triangle Congruency

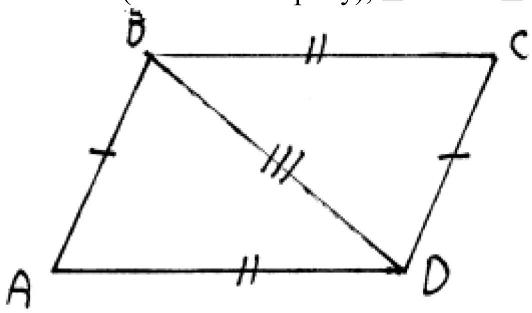
223 ANS:

$\overline{AC} \cong \overline{EC}$ 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

224 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

225 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.

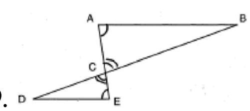
PTS: 6 REF: fall0838ge STA: G.G.27 TOP: Circle Proofs

226 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

227 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

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