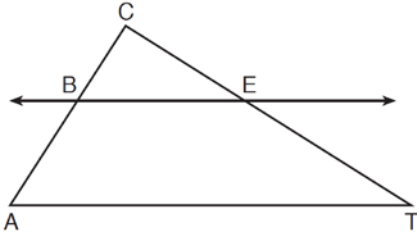


**G.SRT.B.5: Side Splitter Theorem 2**

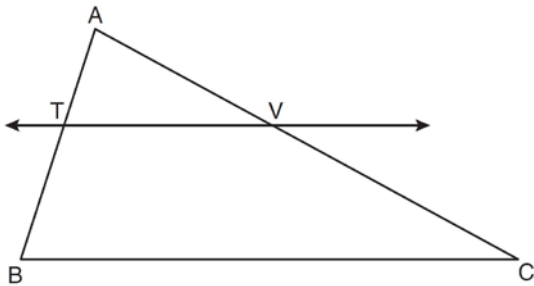
- 1 In the diagram below of  $\triangle ACT$ ,  $\overleftrightarrow{BE} \parallel \overleftrightarrow{AT}$ .



If  $CB = 3$ ,  $CA = 10$ , and  $CE = 6$ , what is the length of  $\overline{ET}$ ?

- 1) 5
- 2) 14
- 3) 20
- 4) 26

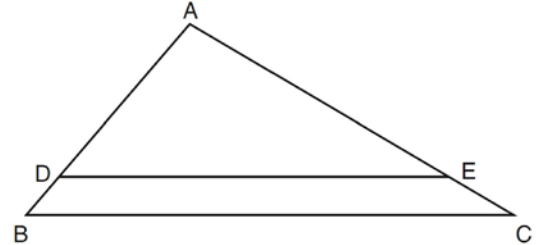
- 2 In the diagram below of  $\triangle ABC$ ,  $\overleftrightarrow{TV} \parallel \overleftrightarrow{BC}$ ,  $AT = 5$ ,  $TB = 7$ , and  $AV = 10$ .



What is the length of  $\overline{VC}$ ?

- 1)  $3\frac{1}{2}$
- 2)  $7\frac{1}{7}$
- 3) 14
- 4) 24

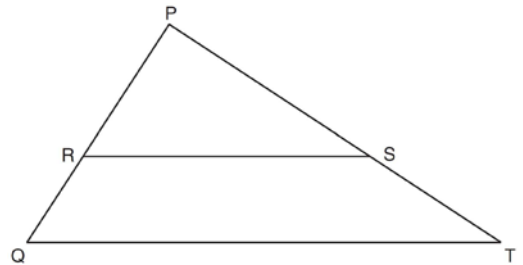
- 3 In the diagram of  $\triangle ABC$  shown below,  $\overline{DE} \parallel \overline{BC}$ .



If  $AB = 10$ ,  $AD = 8$ , and  $AE = 12$ , what is the length of  $\overline{EC}$ ?

- 1) 6
- 2) 2
- 3) 3
- 4) 15

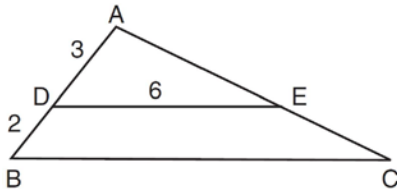
- 4 Triangle  $PQT$  with  $\overline{RS} \parallel \overline{QT}$  is shown below.



If  $PR = 12$ ,  $RQ = 8$ , and  $PS = 21$ , what is the length of  $\overline{PT}$ ?

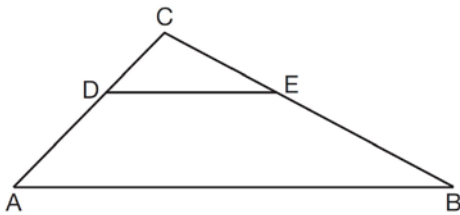
- 1) 14
- 2) 17
- 3) 35
- 4) 38

- 5 In the diagram of  $\triangle ABC$  below,  $\overline{DE} \parallel \overline{BC}$ ,  $AD = 3$ ,  $DB = 2$ , and  $DE = 6$ .



What is the length of  $\overline{BC}$ ?

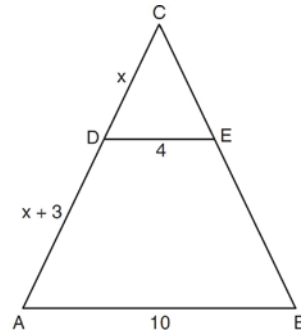
- 1) 12
  - 2) 10
  - 3) 8
  - 4) 4
- 6 In the diagram of  $\triangle ABC$  below,  $\overline{DE} \parallel \overline{AB}$ .



If  $CD = 4$ ,  $CA = 10$ ,  $CE = x + 2$ , and  $EB = 4x - 7$ , what is the length of  $\overline{CE}$ ?

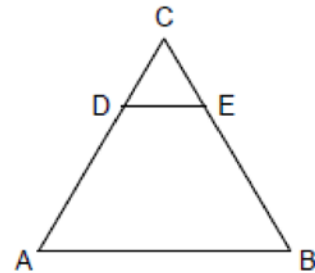
- 1) 10
- 2) 8
- 3) 6
- 4) 4

- 7 In the diagram below of  $\triangle ABC$ ,  $\overline{CD} \parallel \overline{CEB}$ ,  $\overline{DE} \parallel \overline{AB}$ ,  $DE = 4$ ,  $AB = 10$ ,  $CD = x$ , and  $DA = x + 3$ .



What is the value of  $x$ ?

- 1) 0.5
  - 2) 2
  - 3) 5.5
  - 4) 6
- 8 In the accompanying diagram of equilateral triangle  $ABC$ ,  $DE = 5$  and  $\overline{DE} \parallel \overline{AB}$ .

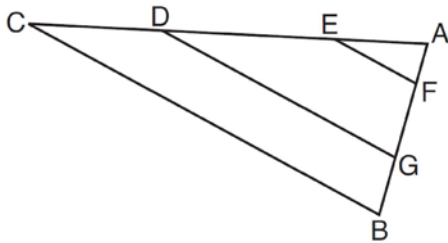


If  $AB$  is three times as long as  $DE$ , what is the perimeter of quadrilateral  $ABED$ ?

- 1) 20
- 2) 30
- 3) 35
- 4) 40

- 9 In  $\triangle ABC$ , point  $D$  is on  $\overline{AB}$ , and point  $E$  is on  $\overline{BC}$  such that  $\overline{DE} \parallel \overline{AC}$ . If  $DB = 2$ ,  $DA = 7$ , and  $DE = 3$ , what is the length of  $\overline{AC}$ ?
- 1) 8
  - 2) 9
  - 3) 10.5
  - 4) 13.5

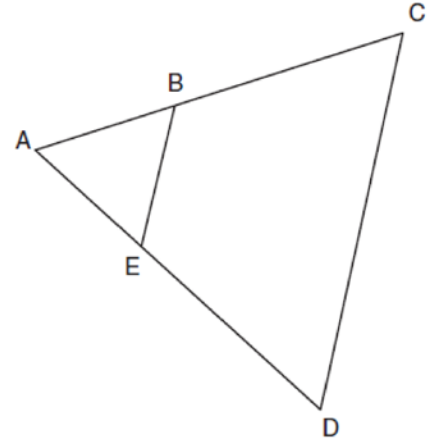
- 10 In the diagram below of  $\triangle ABC$ , with  $\overline{CDEA}$  and  $\overline{BGFA}$ ,  $\overline{EF} \parallel \overline{DG} \parallel \overline{CB}$ .



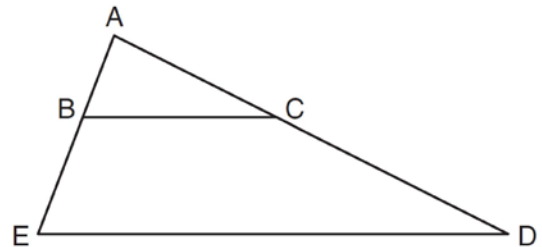
Which statement is *false*?

- 1)  $\frac{AC}{AD} = \frac{AB}{AG}$
- 2)  $\frac{AE}{AF} = \frac{AC}{AB}$
- 3)  $\frac{AE}{AD} = \frac{EC}{AC}$
- 4)  $\frac{BG}{BA} = \frac{CD}{CA}$

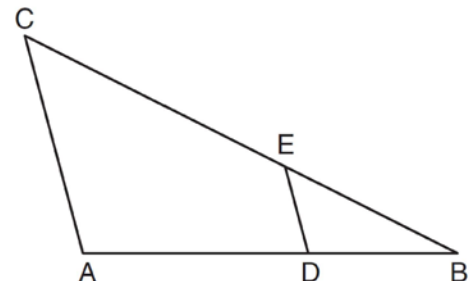
- 11 In the diagram below of  $\triangle ACD$ ,  $E$  is a point on  $\overline{AD}$  and  $B$  is a point on  $\overline{AC}$ , such that  $\overline{EB} \parallel \overline{DC}$ . If  $\overline{AE} = 3$ ,  $\overline{ED} = 6$ , and  $\overline{DC} = 15$ , find the length of  $\overline{EB}$ .



- 12 In the diagram below of  $\triangle ADE$ ,  $B$  is a point on  $\overline{AE}$  and  $C$  is a point on  $\overline{AD}$  such that  $\overline{BC} \parallel \overline{ED}$ ,  $AC = x - 3$ ,  $BE = 20$ ,  $AB = 16$ , and  $AD = 2x + 2$ . Find the length of  $\overline{AC}$ .



- 13 In the diagram below of  $\triangle ABC$ ,  $D$  is a point on  $\overline{AB}$ ,  $E$  is a point on  $\overline{BC}$ ,  $\overline{AC} \parallel \overline{DE}$ ,  $CE = 25$  inches,  $AD = 18$  inches, and  $DB = 12$  inches. Find, to the nearest tenth of an inch, the length of  $\overline{EB}$ .



### G.SRT.B.5: Side Splitter Theorem 2 Answer Section

1 ANS: 2

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

$$3x = 42$$

$$x = 14$$

REF: 081027ge

2 ANS: 3

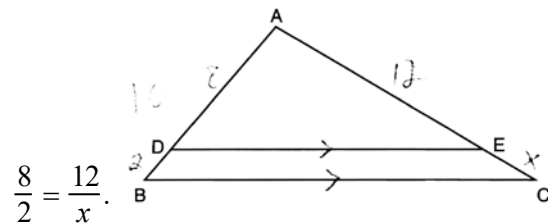
$$\frac{5}{7} = \frac{10}{x}$$

$$5x = 70$$

$$x = 14$$

REF: 081103ge

3 ANS: 3



$$\frac{8}{2} = \frac{12}{x}$$

$$8x = 24$$

$$x = 3$$

REF: 061216ge

4 ANS: 3

$$\frac{12}{8} = \frac{21}{x} \quad 21 + 14 = 35$$

$$12x = 168$$

$$x = 14$$

REF: 061426ge

5 ANS: 2

$$\frac{3}{6} = \frac{5}{x}$$

$$3x = 30$$

$$x = 10$$

REF: 081423ge

6 ANS: 3

$$\frac{4}{6} = \frac{x+2}{4x-7}$$

$$16x - 28 = 6x + 12$$

$$10x = 40$$

$$x = 4$$

REF: 011521ge

7 ANS: 4

$$\frac{x}{4} = \frac{x+x+3}{10}$$

$$10x = 8x + 12$$

$$2x = 12$$

$$x = 6$$

REF: 011626ge

8 ANS: 4

Because  $\overline{DE} \parallel \overline{AB}$ ,  $\triangle CDE$  is an equilateral triangle as well. If  $DE = 5$ , then  $CD = 5$  and  $CE = 5$ , and  $AD = 10$  and  $BE = 10$ . Since  $AB$  is three times as long as  $DE$ ,  $AB = 15$ .  $5 + 10 + 10 + 15 = 40$

REF: 089915a

9 ANS: 4

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

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

$$x = 13.5$$

REF: 060927ge

10 ANS: 3

REF: 081507ge

11 ANS:

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

$$9x = 45$$

$$x = 5$$

REF: 011033ge

12 ANS:

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

$$16x + 80 = 20x - 60$$

$$140 = 4x$$

$$35 = x$$

REF: 011137ge

13 ANS:

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

$$18x = 300$$

$$x \approx 16.7$$

REF: 061133ge