Name: _____

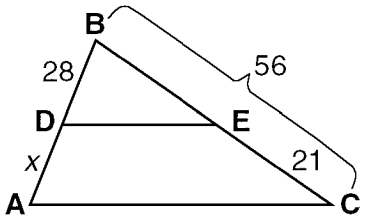
CC Geometry

Practice with Similar Triangles

Questions 1 and 2 refer to the following:

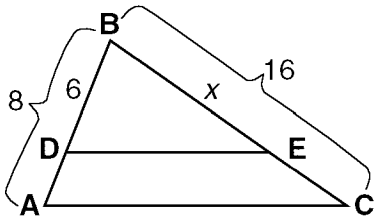
In ΔABC, find x given that $\overline{DE} \parallel \overline{AC}$.

1)



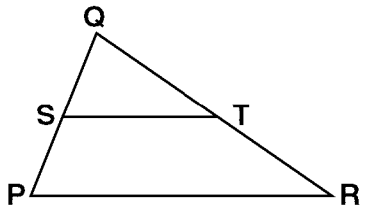
A) 14.6
B) 16.8
C) 15.8
D) 17.2

2)



A) 10
B) 14
C) 12
D) 8

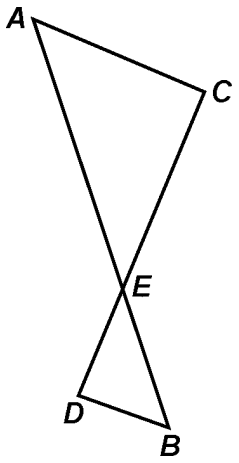
3) In ΔPQR below, S and T are midpoints of $\overline{PQ}$ and $\overline{QR}$, respectively.



If ST = x and PR = 12, what is the value of x?

A) 3
B) 9
C) 24
D) 6

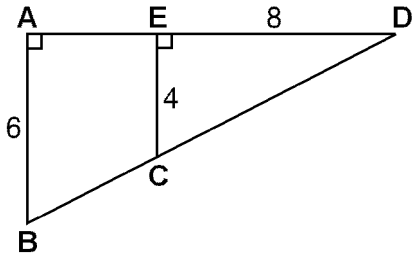
4) As shown in the diagram below, $\overline{AB}$ and $\overline{CD}$ intersect at E, and $\overline{AC} \parallel \overline{BD}$.



Given $\Delta AEC \sim \Delta BED$, which equation is true?

A) $\frac{ED}{EC} = \frac{AC}{BD}$
B) $\frac{EC}{AE} = \frac{BE}{ED}$
C) $\frac{AE}{BE} = \frac{AC}{BD}$
D) $\frac{CE}{DE} = \frac{EB}{EA}$

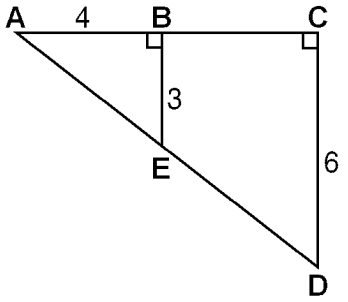
5) In the accompanying diagram of ΔABD, $\overline{AB} \perp \overline{AD}$ and $\overline{EC} \perp \overline{AD}$.



If $AB = 6$, $EC = 4$, and $ED = 8$, find $\overline{AE}$.

A) 6
B) 12
C) 3
D) 4

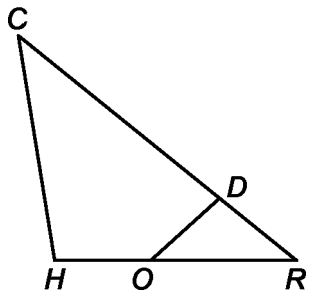
6) In the accompanying figure, $\overline{AB} \perp \overline{BE}$, $\overline{AC} \perp \overline{CD}$, $AB = 4$, $BE = 3$, and $CD = 6$.



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

A) 12
B) 8
C) 6
D) 10

7) In triangle CHR, O is on $\overline{HR}$, and D is on $\overline{CR}$ so that $\angle H = \angle RDO$.

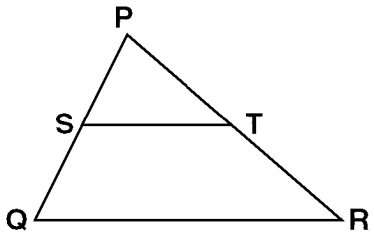


If $RD = 4$, $RO = 6$, and $OH = 4$, what is the length of $\overline{CD}$?

A) 11
B) $2\frac{2}{3}$
C) 15
D) $6\frac{2}{3}$

8) When the midpoints of the sides of ΔABC are joined, a triangle with a perimeter of 20 inches is formed. Find the perimeter of ΔABC.

Questions 9 and 10 refer to the following:

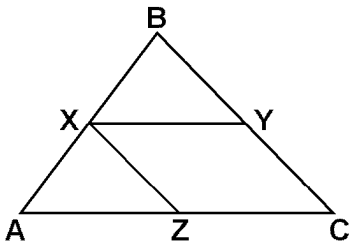


9) If $\overline{ST} \parallel \overline{QR}$, $PT = 16$, $TR = 8$, and $PS = 8$, find $\overline{SQ}$. [*Show all work.*]

10) If $\overline{ST} \parallel \overline{QR}$, $PS = 6$, $PT = 12$, and $PR = 22$, find $\overline{SQ}$. [*Show all work.*]

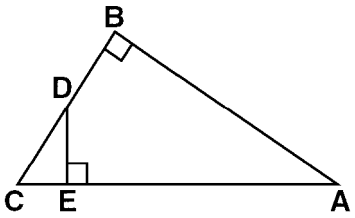
11) The sides of a triangle are 4, 8, and 10. If the longest side of a similar triangle measures 30, find the *shortest* side. [*Show all work.*]

12) In the accompanying diagram of ΔABC, $AB = 6$, $BC = 8$, and $AC = 12$. Points X, Y, and Z are midpoints of $\overline{AB}$, $\overline{BC}$, and $\overline{AC}$, respectively.

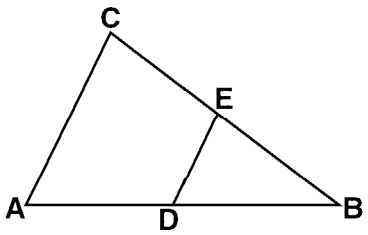


Find the perimeter of quadrilateral XYCZ.

13) In ΔABC, $\overline{AB} \perp \overline{BC}$ and $\overline{DE} \perp \overline{CA}$. If $DE = 8$, $CD = 10$, and $CA = 30$, find AB.

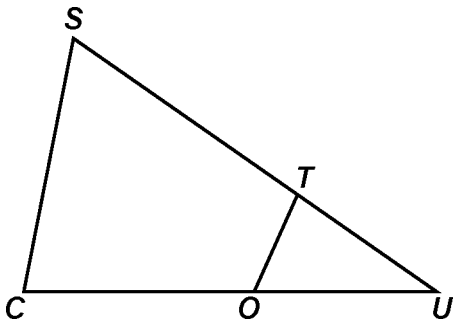


14) In the accompanying diagram of ΔABC, D is the midpoint of $\overline{AB}$ and E is the midpoint of $\overline{BC}$.



If $DE = 5$ and $AC = 2x - 20$, find x.

15) In ΔSCU shown below, points T and O are on $\overline{SU}$ and $\overline{CU}$, respectively. Segment OT is drawn so that $\angle C \cong \angle OTU$.



If $TU = 4$, $OU = 5$, and $OC = 7$, what is the length of $\overline{ST}$?

1) B 2) C 3) D 4) C 5) D

6) B 7) A

8) 40

9) 4

SAMPLE WORK: Let $x = SQ$, $\frac{x}{8} = \frac{8}{16}$, $16x = 64$, $x = 4$

10) 5

SAMPLE WORK: Let $x = SQ$; $TR = PR - PT = 22 - 12 = 10$, $\frac{x}{6} = \frac{10}{12}$, $12x = 60$, $x = 5$

11) 12

WORK SHOWN: Let x = shortest side; $\frac{x}{4} = \frac{30}{10}$, $10x = 120$, $x = 12$

12) 20

13) 24

14) 15

15) 11