

CPM

Name: Answer Key  
Per: \_\_\_\_\_

## PSAT Geometry Practice Questions

### Calculator

1. If a printer can print 5 pages in 20 seconds, how many pages can it print in 5 minutes?

$$\frac{5 \text{ pages}}{20 \text{ seconds}} = \frac{x \text{ pages}}{300 \text{ seconds (5 min)}}$$

(75 pages)

7	5		
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2. What number is the same percent of 36 as 5 is of 24?

$$\frac{5}{24} = \frac{x}{36} \quad x = 7.5$$

7	.	5	
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3. If the graphs of the equations  $5x - 2y = 5$  and  $6x + ky = 9$  are perpendicular, what is the value of  $k$ ? Perpendicular = opp reciprocal slopes

$$\begin{array}{r} 5x - 2y = 5 \\ -5x \quad +5x \\ \hline -2y = -5x + 5 \\ \div -2 \\ y = \frac{5}{2}x - \frac{5}{2} \end{array} \quad \left| \quad \begin{array}{r} 6x + ky = 9 \\ -6x \quad -6x \\ \hline ky = -6x + 9 \\ \div k \\ y = -\frac{6}{k}x + \frac{9}{k} \end{array} \right.$$

1	5		
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$m = \frac{5}{2}$

$$\perp m = -\frac{2}{5} = -\frac{6}{k}$$

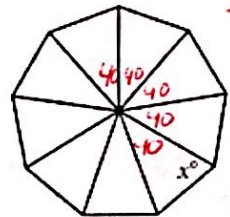
4. In the figure below, a regular polygon with 9 sides has been divided into 9 congruent triangles by line segments drawn from the center of the polygons to its vertices. What is the value of  $x$ ?

$$\frac{360}{9} = 40^\circ$$

$$180 - 40 = 140$$

$$\frac{140}{2} = 70^\circ$$

$x = 70^\circ$



$$-2x = -30 \\ 12 = 15$$

5. Two isosceles triangles are shown above. If  $180 - z = 2y$  and  $y = 75$ , what is the value of  $x$ ?

$$\begin{array}{r} 180 - z = 150 \\ -180 \quad -180 \\ \hline -z = -30 \\ z = 30 \end{array}$$

$x = 105^\circ$



$$180 - 30 = \frac{150}{2}$$

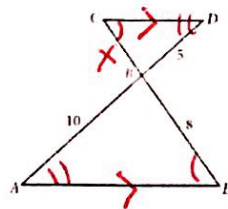
$$180 - 75 = 105^\circ$$

6. In the figure below  $\overline{AE} \parallel \overline{CD}$  and segment AD intersects segment CE at B. What is the length of segment CE?

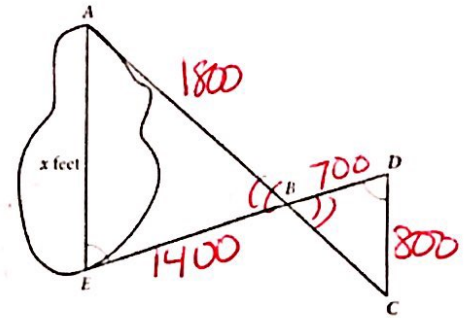
Similar  $\Delta$ 's

$$\frac{x}{8} = \frac{5}{10} \\ x = 4$$

$$CE = 4 + 8 = 12 \\ \boxed{CE = 12u}$$



7. A summer camp counselor wants to find a length  $x$  in feet, across the lake as represented in the sketch below. The lengths represented by  $AB$ ,  $EB$ ,  $BD$  and  $CD$  on the sketch were determined to be 1800 ft., 1400 ft., 700 ft., and 800 ft. respectively. Segments  $AC$  and  $DE$  intersect at  $B$  and  $\angle AEB$  and  $\angle CDB$  have the same measure. What is the value of  $x$ ?



Similar triangles

$$\frac{700}{1400} = \frac{800}{x}$$

$$x = 1,600 \text{ ft}$$

No Calculator

8. What is the y-intercept of the line containing the points (3, 7) and (6, 3)?

$$m = \frac{7-3}{3-6} = \frac{4}{-3} = -\frac{4}{3}$$

$$y-7 = -\frac{4}{3}(x-3)$$

$$y-7 = -\frac{4}{3}x + 4$$

$$y = -\frac{4}{3}x + 11$$

0	,	1	1
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9. If  $\frac{5x}{2} + 3 = 7$  then  $10x + 12 =$

$$10x + 12 = 28$$

2	8		
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10. Which of the following expresses  $z$  in terms of  $x$  and  $y$ ?

a.  $2x + 3y - 180$

b.  $x + 2y - 180$

c.  $180 - x - y$

d.  $360 - 2x - 3y$

$$180 - y - z = m\angle 1$$

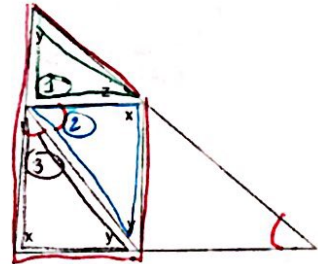
$$180 - x - y = m\angle 2$$

$$180 - x - y = m\angle 3$$

$$m\angle 1 + m\angle 2 + m\angle 3 = 180$$

$$(180 - y - z) + (180 - x - y) + (180 - x - y) = 180$$

$$540 - 2x - 3y - z = 180 \Rightarrow 360 - 2x - 3y = z$$



11. In triangle  $ABC$  below,  $AB = AC$ ,  $E$  is the midpoint of  $AB$  and  $D$  is the midpoint of  $AC$ . If  $AE = x$  and  $ED = 4$ , what is the length of  $BC$ ?

a. 6

b. 8

c.  $2x$

d.  $4x$

