

### Geometry--Unit 6 Study Guide

1. Find the measure of an exterior angle of a regular polygon with 20 sides. Round to the nearest tenth if necessary.
  - a. 360
  - b. 162
  - c. 18
  - d. 3240

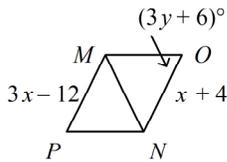
Write an equation in point-slope form of the line having the given slope that contains the given point.

2.  $m = 4, (2, 5)$ 
  - a.  $y = 4x + 5$
  - b.  $y - 5 = 4(x - 2)$
  - c.  $y - 5 = 2(x - 4)$
  - d.  $y - 2 = 4(x - 5)$

Determine whether  $\overleftrightarrow{WX}$  and  $\overleftrightarrow{YZ}$  are parallel, perpendicular, or neither.

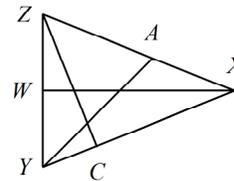
3.  $W(0, -3), X(-1, 5), Y(2, 5), Z(-1, 2)$ 
  - a. parallel
  - b. perpendicular
  - c. neither

4. Triangles  $MNP$  and  $OMN$  are congruent equilateral triangles. Find  $x$  and  $y$ .



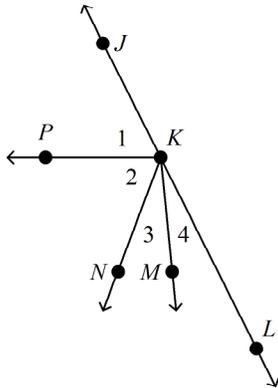
- a.  $x = 4, y = 18$
  - b.  $x = 4, y = 22$
  - c.  $x = 8, y = 22$
  - d.  $x = 8, y = 18$
5. Solve  $x^2 - 16x + 64 = 0$ .
  - a.  $\{4\}$
  - b.  $\{-4\}$
  - c.  $\{-8, 8\}$
  - d.  $\{8\}$

6.  $\overline{ZC}$  is an altitude,  $\angle CYW = 9x + 38$ , and  $\angle WZC = 17x$ . Find  $m\angle WZC$ .



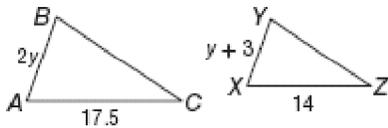
- a. 18
  - b. 34
  - c. 32
  - d. 31
7. Find the measure of an interior angle of a regular polygon with 14 sides. Round to the nearest tenth if necessary.
  - a. 154.3
  - b. 360
  - c. 2160
  - d. 25.7

In the figure,  $\overrightarrow{KJ}$  and  $\overrightarrow{KL}$  are opposite rays.  
 $\angle 1 \cong \angle 2$  and  $KM$  bisects  $\angle NKL$ .



8. If  $\angle JKN$  is a right angle and  $m\angle 4 = 2(3x + 6)$ , what is  $x$ ?
- 30
  - 45
  - 5.5
  - 9.5

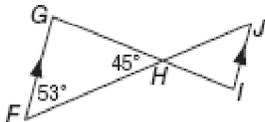
9. If  $\triangle ABC \sim \triangle XYZ$ , find  $y$ .



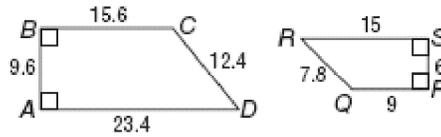
**Simplify each expression. Write your answer in simplified radical form.**

10.  $\frac{2\sqrt{3}}{\sqrt{6}-2}$

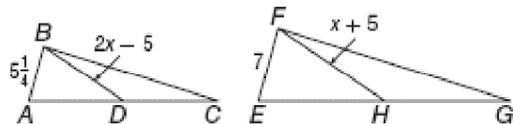
11. Find  $m\angle I$ .



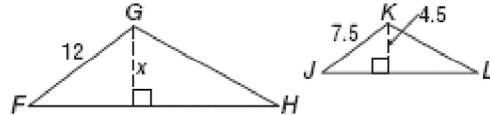
12. Determine whether trapezoid  $ABCD \sim$  trapezoid  $PQRS$ . Justify your answer.



13. If  $\triangle ABC \sim \triangle EFG$  and  $\overline{BD}$  and  $\overline{FH}$  are medians, find  $BD$ .



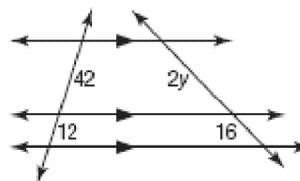
**For the following questions,  $\triangle FGH \sim \triangle JKL$ .**



14. Find the ratio of the perimeter of  $\triangle FGH$  to the perimeter of  $\triangle JKL$ .

15. Find the value of  $x$ .

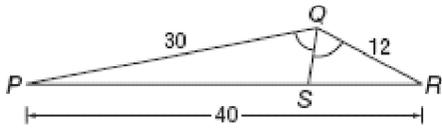
16. Find the value of  $y$ .



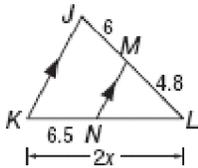
**Find each product.**

17.  $(2c - 1)^2$

18. Find  $SR$ .



19. Find the value of  $x$ .



20. In an orchard of apple and peach trees,  $\frac{3}{7}$  of the trees are peaches. What is the ratio of apple trees to peach trees?

21. A painting that is 48 inches by 12 inches is reduced to fit on a canvas that is 30 centimeters by 10 centimeters. Find the maximum dimensions of the reduced painting.

22. The ratio of the measures of the sides of a triangle is 2:5:6. If the length of the longest side is 48 inches, find the perimeter.

23. A triangle with coordinates  $A(0, 0)$ ,  $B(4, 0)$ , and  $C(0, 4)$  is enlarged by a factor of 2. What are the coordinates of the image?

24.  $\triangle ABC \sim \triangle DEF$ ,  $AB = 8$ ,  $BC = 13$ ,  $AC = 15$ , and  $DF = 20$ . Find the perimeter of  $\triangle DEF$ .

25. When a 15-foot tall climbing wall cast a 20-foot shadow, a building cast a 32-foot shadow. Find the height of the building.

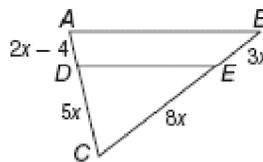
Write a paragraph proof.

26.  $\overleftrightarrow{PQ}$  and  $\overleftrightarrow{RS}$  intersect at point  $T$  and  $\angle PTR \cong \angle RTQ$ . Prove  $\overleftrightarrow{PQ} \perp \overleftrightarrow{RS}$ .

27. In  $\triangle ABC$ ,  $m \angle A = 51$ ,  $AB = 14$ , and  $AC = 20$ . In  $\triangle DEF$ ,  $m \angle D = 51$ ,  $DE = 16.8$ , and  $DF = 24$ . Determine whether  $\triangle ABC \sim \triangle DEF$ . Justify your answer.

28.  $\triangle ABC \sim \triangle JKL$ ,  $AB = 12$ ,  $BC = 18.4$ ,  $KL = 6.9$ , and  $JL = 5.6$ . Find the scale factor of  $\triangle ABC$  to  $\triangle JKL$ .

29. Find  $AD$  so that  $\overline{DE} \parallel \overline{AB}$



30. Find the value of  $y$ .

