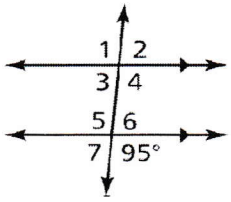
Name Answers Date

Review 3.1-3.2

Part I: Parallel Lines and Transversals.

Use the figure to find the measure of the angle. Explain your reasoning.



1. $\angle 6 =$ 85°, because of supplementary angles.

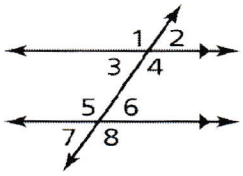
2. $\angle 5 =$ 95°, because they are vertical angles and are congruent.

3. $\angle 3 =$ 85°, because it is an alternate interior angle with $\angle 6$, and therefore, they are congruent.

4. $\angle 2 =$ 85°, because it is a corresponding angle with $\angle 6$, and therefore, they are congruent.

Find the missing angle measure.

5. If the measure of $\angle 3 = 46°$, then the measure of $\angle 6 =$ 46°.



6. If the measure of $\angle 1 = 102°$, then the measure of $\angle 8 =$ 102°.

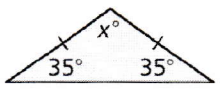
7. If the measure of $\angle 4 = 98°$, then the measure of $\angle 7 =$ 82°.

8. If the measure of $\angle 6 = 59°$, then the measure of $\angle 4 =$ 121°.

Part II: Angles of Triangles.

Find the measures of the interior angles. Show algebraic work.

9.



$x + 35 + 35 = 180$

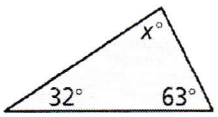
$x + 70 = 180$

$-70 \quad -70$

$x = 110°$

35°, 35°, 110°

10.



$x + 32 + 63 = 180$

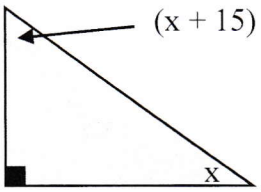
$x + 95 = 180$

$-95 \quad -95$

$\boxed{x = 85^\circ}$

$\boxed{32^\circ, 63^\circ, 85^\circ}$

11. Find the value of the missing interior angle measures. Show algebraic work.



$x + (x + 15) + 90 = 180$

$2x + 105 = 180$

$-105 \quad -105$

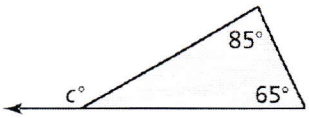
$\frac{2x}{2} = \frac{75}{2}$

$x = 37.5^\circ$

$\boxed{\begin{array}{l} x = 37.5^\circ \\ x + 15 = 52.5^\circ \end{array}}$

Find the measure of the exterior angle. Show algebraic work.

12.

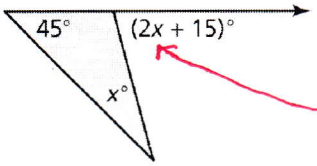


$85 + 65 = c$

$150^\circ = c$

$c =$ 150°

13.



$45 + x = 2x + 15$

$-x \quad -x$

$45 = x + 15$

$-15 \quad -15$

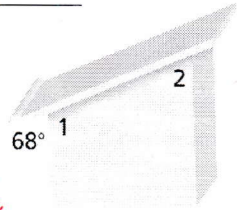
$30 = x$

$(2x + 15) =$ 75°

Part III: Problem Solving.

14. A lectern has four vertical sides and a slanted top. Find the measures of $\angle 1$ and $\angle 2$. Explain your reasoning.

$\angle 1 =$ 112°, because it is supplementary to 68°.



$\angle 2 =$ 68°, because it is a corresponding angle with 68° and therefore congruent.

15. A ladder leaning against a wall forms a triangle and exterior angles with the wall and the ground. What are the measures of exterior angles y and z? Use an equation to justify or prove your answer.

Work space:

$7x + 11x + 90 = 180$

$18x + 90 = 180$

$-90 \quad -90$

$\frac{18x}{18} = \frac{90}{18}$

$x = 5$

$y =$ 145°

Work space:

$y + 35 = 180$

$-35 \quad -35$

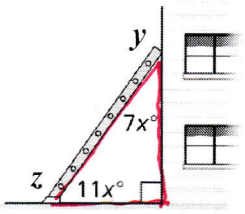
$y = 145°$

$z + 55 = 180$

$-55 \quad -55$

$z = 125°$

$z =$ 125°



Focus on the triangle.