Name _____ Date _____

CHAPTER 11

Cumulative Review

For use after Chapter 11

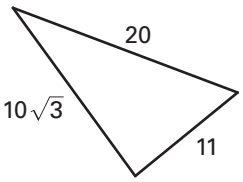
A large circular room has a diameter of 15 meters. Round your answers to the nearest tenth.

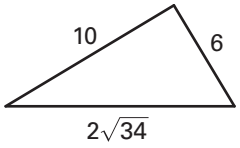
1. How much carpet is needed to cover the floor?
2. How much wallpaper border is needed to trim the top edge of the walls all the way around the room?

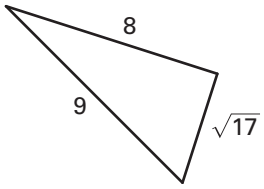
In Exercises 3 and 4, show the conjecture is false by finding a counterexample.

3. If the quotient of two numbers is even, then the two numbers must both be even.
4. If the measure of both legs of a right triangle are whole numbers, then the measure of the hypotenuse is also a whole number.
5. In $\triangle MNP$, $\angle M \cong \angle P$ and the measure of $\angle N$ is three times the measure of $\angle M$. Find the measure of each angle.

Tell whether the triangle is a right triangle. If so, find the length of the altitude to the hypotenuse. Round your answers to the nearest tenth.

6. 

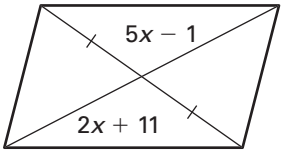
7. 

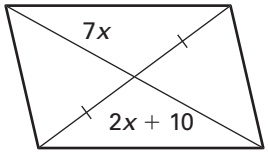
8. 

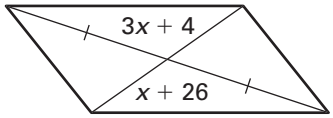
9. The sides of $\square MNPQ$ are represented by the expressions below. Sketch $\square MNPQ$ and find its perimeter.

$MQ = -3x + 58$ $QP = 4z - 3$ $NP = x - 6$ $MN = 7z - 27$

For what value of *x* is the quadrilateral a parallelogram? *(Lesson 8.3)*

10. 

11. 

12. 

REVIEW AND PROJECT

Name _____ Date _____

CHAPTER 11

Cumulative Review *continued*

For use after Chapter 11

Find the image matrix that represents the rotation of the polygon about the origin. Then graph the polygon and its image.

13. $\begin{bmatrix} A & B & C \\ -2 & 1 & 5 \\ -3 & 4 & 1 \end{bmatrix}$, 270°

14. $\begin{bmatrix} D & E & F \\ -4 & 0 & 3 \\ 1 & 5 & 2 \end{bmatrix}$, 90°

15. $\begin{bmatrix} W & X & Y & Z \\ -3 & -2 & 1 & 4 \\ -4 & 0 & -1 & -5 \end{bmatrix}$, 180°

The vertices of $\triangle PQR$ are $P(1, 1)$, $Q(3, 2)$, and $R(4, 1)$. Graph the image of $\triangle PQR$ after a composition of the transformations in the order they are listed.

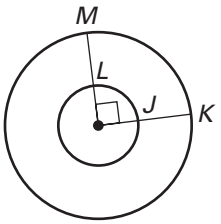
16. **Translation:** $(x, y) \rightarrow (x + 2, y)$
Reflection: in the line $y = -1$

17. **Translation:** $(x, y) \rightarrow (x - 4, y + 3)$
Rotation: 90° about the origin

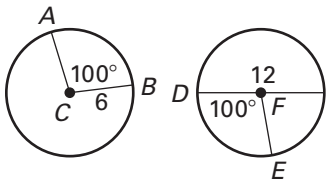
18. **Dilation:** centered at the origin with a scale factor of 3
Reflection: in the x-axis

Tell whether the given arcs are congruent. *Explain* why or why not.

19. $\overset{\frown}{LJ}, \overset{\frown}{MK}$

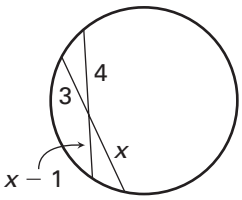


20. $\overset{\frown}{AB}, \overset{\frown}{DE}$



Find the value of x.

21.



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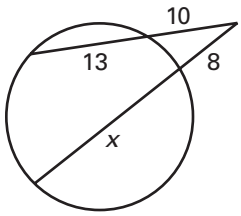
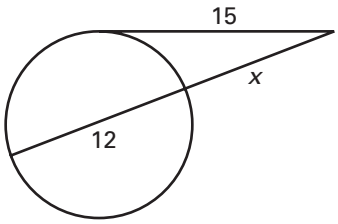
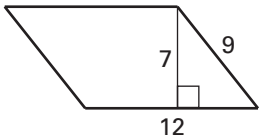


23.

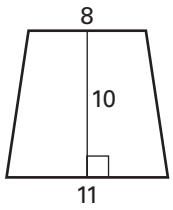


Find the area of the figure.

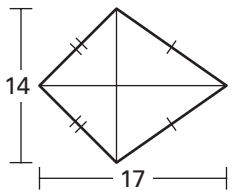
24.



25.



26.



27. The equation of a circle is $(x + 1)^2 + (y - 4)^2 = 36$. What is the circumference of the circle? Write the circumference in terms of π.