Test 1-2 REVIEW: Scale Factor, Changing Dimensions, Angle Similarities

TEST DATE: Friday, September 26th

1. The sides of a trapezoid are each increased in length by a factor of 3.5. By what factor will the perimeter of the trapezoid change?

2. Look at the two rectangles to the right. The dimensions of rectangle $M$ are 2.5 times the dimensions of rectangle $J$. What do you multiply the area of rectangle $J$ by to get the area of rectangle $M$?

3. A parallelogram has a base of 8 yd and a height of 17 yd. If the parallelogram is increased by a scale factor of 3, what is the perimeter of the enlarged parallelogram? (draw it!)

4. Look at the trapezoid. If the dimensions are increased by a scale factor of 2, what is the area of the new trapezoid? (hint: remember Scale Factor squared)

5. Describe the change in the perimeter of a triangle if all its side lengths are multiplied by 4.
6. A square has its dimensions changed proportionally by a scale factor of 4. If the new perimeter is 128 inches, what was the length of a side in the original square? (draw it!)

7. Jordan designed a logo for his business cards. He needs to enlarge the business card logo for the letterhead on his business stationary. A rectangle in the logo for the business cards is 1.5 cm wide and 2 cm long. The perimeter of the rectangle for the letterhead needs to be 3.5 times the perimeter of the rectangle on the business cards. What is the perimeter of the rectangle for the letterhead? (Draw the rectangles)

8. The right triangle below is dilated by a scale factor of 4. What is the area of the new triangle?

9. A square has its dimensions changed proportionally by a scale factor of 3. If the new area is 225 square inches, what was the area of the original square? (draw it)

10. If the dimensions of a shape are all tripled, what effect will this have on the area of the new shape?
11. What is the distance between the two docks?

![Image of docks and distance](image)

12. What is the distance from A to C?

Name the pairs of corresponding angles

______________________________

Name the corresponding sides

______________________________

![Image of triangle AFB and its sides](image)

13. A statue casts a 10-foot shadow. At the same time, a 6-foot man casts a 4-foot shadow. How tall is the statue? (draw it)

14. Draw the image of the figure after the dilation of a scale factor of 4.

![Image of original and new figures](image)

What is the perimeter of the original figure? ______________________________

What is the perimeter of the new figure? ______________________________

What is the area of the original figure? ______________________________

What is the area of the new figure? ______________________________

Describe the change in the perimeter after the dilation. ______________________________

Describe the change in the area after the dilation. ______________________________
15. The figure below will be dilated by a scale factor of 5 from the center of dilation.

What is the algebraic rule that will reflect the new coordinates of the figure?

A  \((x - 5, y - 5)\)

B  \((-5x, -5y)\)

C  \((5x, 5y)\)

D  \((x + 5, y + 5)\)

16. Point Q is at the location \((3, 4)\) on the polygon below.

If the polygon is dilated by a scale factor of \(\frac{1}{3}\) from the center, what will be the new location of point Q?

A  \((3x, 3y)\)

B  \((x + \frac{1}{3}, y + \frac{1}{3})\)

C  \((x+3, y+3)\)

D  \((\frac{1}{3}x, \frac{1}{3}y)\)

17. If the dimensions of a circle with a circumference of 24 inches are tripled, what will be the circumference of the new circle?
18. Rectangle ABCD is centered at the origin on the coordinate plane below.

![Coordinate plane with rectangle ABCD centered at the origin]

The coordinates of A, B, C, and D are (-2, 1), (2,1), (2, -1), and (-2, -1), respectively. If rectangle ABCD is dilated by a scale factor of 3 to produce the image A'B'C'D', what is the perimeter of image A'B'C'D'? 

19. Which of the following numbers is an irrational number?

A ¾  
B √225  
C √17  
D 175.2845

20. Which point on the number line below best represents the value of √45?

![Number line with points P, Q, R, and S]

21. Between which two integers does √150 lie? ________________________________

22. Write the number 2.9 x 10⁻⁵ in standard form. ________________________________

23. On a recent math test, Sam answered \( \frac{2}{3} \) of the questions correctly, Courtney answered 65% of the questions correctly, Jeffrey answered 0.6 of the questions correctly, and Rebecca answered \( \frac{5}{8} \) of the questions correctly. Which of the following shows their test scores in order from least to greatest?

A  
\( \frac{2}{3}, 65\%, \frac{5}{8}, 0.6 \)

B  
0.6, \( \frac{5}{8}, 65\%, \frac{2}{3} \)

C  
0.6, \( \frac{2}{3}, \frac{5}{8}, 65\% \)

D  
\( \frac{5}{8}, 0.6, \frac{2}{3}, 65\% \)
24. The following table shows the amount of time Mrs. Meyers spent on the computer each day for four days.

<table>
<thead>
<tr>
<th>Day</th>
<th>Time in Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>5 2/5</td>
</tr>
<tr>
<td>Tuesday</td>
<td>5 5/8</td>
</tr>
<tr>
<td>Wednesday</td>
<td>5 3/8</td>
</tr>
<tr>
<td>Thursday</td>
<td>5 4/5</td>
</tr>
</tbody>
</table>

On which day did Mrs. Meyers spend the least time on the computer? ______________(show each conversion changing each fraction to a decimal)

25. Triangle ABC is similar to Triangle ADE. Find x, the distance from Point B to Point C.

\[ X = \] 

Similar figures have congruent ___________________________ and proportional ___________________________.

26. \( \triangle LMN \) is similar to \( \triangle JKN \). If LN = 6 cm, JN = 4 cm, and KN = 5 cm, how long is MK?

**Draw the two triangles separately and label the sides. Set up a proportion and solve for side \( MK \).**