

Geometry Summer Review

Name:

Date:

Show your work for each problem. Use graph paper if necessary.

Translations in Geometry

1. Translation Problem 1: Point $A(2, 3)$ is translated 5 units to the right and 4 units down. What are the coordinates of the new point A' ?

$A'(7, -1)$

2. Translation Problem 2: The triangle with vertices $A(1, 2)$, $B(4, 2)$, and $C(1, 6)$ is translated 3 units left and 2 units up. Find the coordinates of the vertices of the translated triangle $A'B'C'$.

$A'(-2, 4)$, $B'(1, 4)$, $C'(-2, 8)$

3. Translation Problem 3: Point $B(-4, 5)$ is translated to $B'(1, 8)$. What was the translation rule used?

$(x,y) \rightarrow (x+ 5, y+ 3)$

4. Translation Problem 4: The square with vertices $P(0, 0)$, $Q(2, 0)$, $R(2, 2)$, and $S(0, 2)$ is translated 3 units down and 2 units to the right. Find the coordinates of the new vertices.

$P'(2, -3)$, $Q'(4, -3)$, $R'(4, -1)$, $S'(2, -1)$

5. Translation Problem 5: Describe the translation that maps (x, y) to $(x-4, y+3)$.

4 units left and 3 units up

Radicals in Exact Value and Decimal Form

6. Radical Problem 1: Simplify $\sqrt{50}$ and provide the exact value.

$5\sqrt{2}$

7. Radical Problem 2: Express $\sqrt{75}$ in simplest radical form and then approximate it to two decimal places.

$5\sqrt{3}$; 8.66

8. Radical Problem 3: Simplify $\sqrt{18} + 3\sqrt{2}$.

$6\sqrt{2}$

9. Radical Problem 4: Evaluate $\sqrt{45} - \sqrt{20}$ and provide the simplified exact value.

$\sqrt{5}$

10. Radical Problem 5: Convert $\sqrt{72}$ to its simplest radical form and approximate it to two decimal places.

$6\sqrt{2}$; 8.49

Pythagorean Theorem

11. Pythagorean Problem 1: A right triangle has legs of lengths 6 cm and 8 cm. What is the length of the hypotenuse?

10cm

12. Pythagorean Problem 2: In a right triangle, the hypotenuse is 13 cm, and one leg is 5 cm. Find the length of the other leg.

12cm

13. Pythagorean Problem 3: A ladder 10 feet long leans against a wall. If the base of the ladder is 6 feet from the wall, how high up the wall does the ladder reach?

8ft

14. Pythagorean Problem 4: Find the length of the diagonal of a rectangle with side lengths 7 meters and 24 meters.

25m

15. Pythagorean Problem 5: A 15-foot rope is tied from the top of a 9-foot pole to a point on the ground. How far is the point on the ground from the base of the pole?

12ft

Solving Multi-Step Equations

16. Equation Problem 1: Solve for x : $3x - 5 = 2x + 7$.

$x = 12$

17. Equation Problem 2: Solve for y : $4(y + 3) - 2y = 10$.

$y = 2$

18. Equation Problem 4: Solve for x : $5(2x - 3) + 4 = 3x + 17$.

$x = 5$