

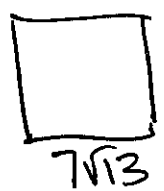
Name Key

Date _____

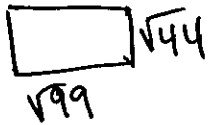
Math 7 Honors

Radicals Study Guide

Directions: Show all your work. Check your answers on the class website: www.burmeister.weebly.com

<p>1. Simplify $\sqrt{125} + \sqrt{5}$</p> $\begin{array}{l} \sqrt{25} \sqrt{5} \\ 5\sqrt{5} + 1\sqrt{5} = \boxed{6\sqrt{5}} \end{array}$	<p>2. Simplify $\sqrt{72} - 3\sqrt{200}$</p> $\begin{array}{l} \sqrt{36} \sqrt{2} - 3\sqrt{100} \sqrt{2} \\ 6\sqrt{2} - 3 \cdot 10\sqrt{2} \\ 6\sqrt{2} - 30\sqrt{2} \\ \boxed{-24\sqrt{2}} \end{array}$
<p>3. Simplify $\sqrt{\frac{40}{25}}$</p> $\frac{\sqrt{40}}{\sqrt{25}} = \frac{\sqrt{4} \sqrt{10}}{\sqrt{25}} = \boxed{\frac{2\sqrt{10}}{5}}$	<p>4. Simplify $\sqrt{\frac{300}{36}}$</p> $\frac{\sqrt{300}}{\sqrt{36}} = \frac{\sqrt{100} \sqrt{3}}{\sqrt{36}} = \frac{10\sqrt{3}}{6} = \boxed{\frac{5\sqrt{3}}{3}}$
<p>5. Simplify $\sqrt{\frac{27}{4}} - \sqrt{\frac{12}{64}}$</p> $\begin{array}{l} \frac{\sqrt{27}}{\sqrt{4}} = \frac{\sqrt{9} \sqrt{3}}{\sqrt{4}} = \frac{3\sqrt{3}}{2} \\ \frac{\sqrt{12}}{\sqrt{64}} = \frac{\sqrt{4} \sqrt{3}}{\sqrt{64}} = \frac{2\sqrt{3}}{8} \\ \frac{4}{4} \left[\frac{3\sqrt{3}}{2} \right] - \frac{2\sqrt{3}}{8} \quad \frac{12\sqrt{3}}{8} - \frac{2\sqrt{3}}{8} = \frac{10\sqrt{3}}{8} = \boxed{\frac{5\sqrt{3}}{4}} \end{array}$	<p>6. Determine the perimeter of a square with a side length of $7\sqrt{13}$.</p>  <p>$4 \cdot 7\sqrt{13}$</p> $\boxed{28\sqrt{13}}$
<p>7. Given $X = -5\sqrt{28}$ and $Y = \sqrt{175}$, simplify the following expressions.</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>$X + Y$</p> $\begin{array}{l} -5\sqrt{28} + \sqrt{175} \\ -5 \cdot \sqrt{4} \sqrt{7} + \sqrt{25} \sqrt{7} \\ -5 \cdot 2\sqrt{7} + 5\sqrt{7} \\ -10\sqrt{7} + 5\sqrt{7} \\ \boxed{-5\sqrt{7}} \end{array}$ </div> <div style="text-align: center;"> <p>$X - Y$</p> $\begin{array}{l} -10\sqrt{7} - 5\sqrt{7} \\ \boxed{-15\sqrt{7}} \end{array}$ </div> </div>	

8. Determine the perimeter of a rectangle with a length of $\sqrt{99}$ and a width of $\sqrt{44}$.



$$2\sqrt{99} + 2\sqrt{44}$$

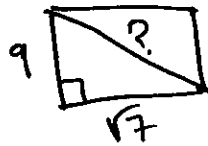
$$2 \cdot \sqrt{9} \sqrt{11} + 2 \cdot \sqrt{4} \sqrt{11}$$

$$2 \cdot 3\sqrt{11} + 2 \cdot 2\sqrt{11}$$

$$6\sqrt{11} + 4\sqrt{11}$$

$$\boxed{10\sqrt{11}}$$

9. A rectangle has a base of $\sqrt{7}$ and a height of 9. Determine the diagonal length of the rectangle.



$$a^2 + b^2 = c^2$$

$$9^2 + \sqrt{7}^2 = c^2$$

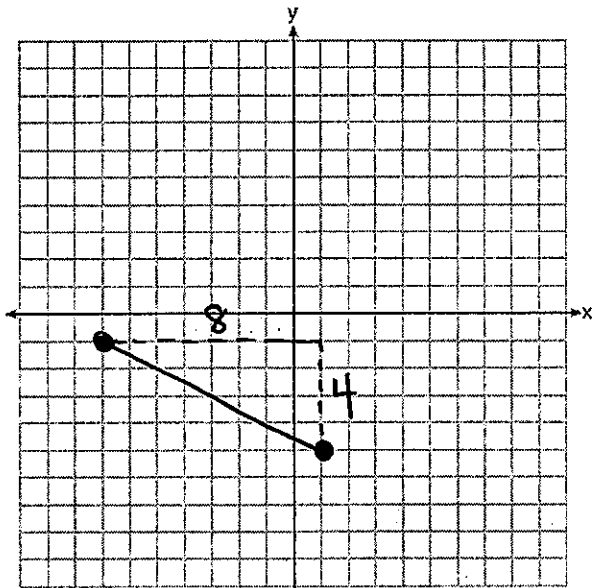
$$81 + 7 = c^2$$

$$\sqrt{88} = c$$

$$c = \sqrt{4} \sqrt{22}$$

$$\boxed{c = 2\sqrt{22}}$$

10. Determine the distance between the points $(-7, -1)$ and $(1, -5)$. Write your answer in simplest radical form.



$$4^2 + 8^2 = c^2$$

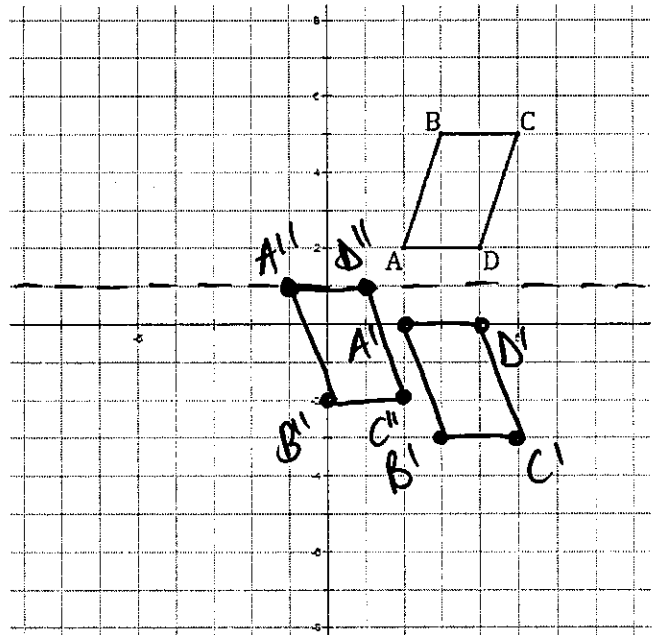
$$16 + 64 = c^2$$

$$\sqrt{80} = c$$

$$c = \sqrt{16} \sqrt{5}$$

$$\boxed{c = 4\sqrt{5}}$$

11. Parallelogram ABCD is shown below.



Part A Show the image of ABCD after a reflection over the line $y = 1$.

Part B Show the image of $A'B'C'D'$ after the translation $(x, y) \rightarrow (x - 3, y + 1)$.

12. The coordinates of point Q are $(7, 3)$. If the translation $(x, y) \rightarrow (x + 5, y - 8)$ is performed on point Q, what will be the coordinates of Q'?

$$(7+5, 3-8)$$

$$(12, -5)$$

- A $(12, -5)$ C $(8, -1)$
- B $(12, 5)$ D $(8, 1)$

13. Triangle ABC is located in quadrant I. If the triangle is reflected in the x -axis, then $\Delta A'B'C'$ will be located in which quadrant?

