Name Key Date

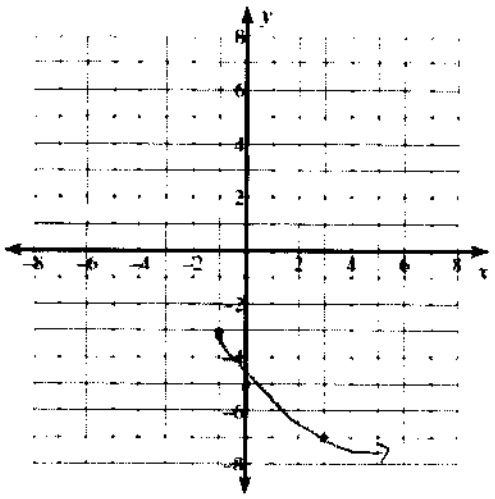
A2CC U6D2 Square Root Functions

1. Identify the domain and range and sketch the graph.

A) $y = -2\sqrt{x+1} - 3$

Domain: $x \geq -1$

Range: $y \leq -3$



2. Simplify each of the following square roots.

A) $\sqrt{18x^4}$ $\sqrt{9 \cdot 2 x^4}$ $3x^2\sqrt{2}$

B) $\sqrt{200x^5y^3}$ $\sqrt{100 \cdot 2 x^5 y^3}$ $10x^2y\sqrt{2xy}$

C) $\sqrt{147x^9y^4}$ $\sqrt{49 \cdot 3 x^9 y^4}$ $7x^4y^2\sqrt{3x}$

3. Which of the following is equivalent to $x^{5/2}$?

$\sqrt{x^5}$ Power / Root

(1) $\frac{5x}{2}$

(2) $\frac{2x}{5}$

(3) $\sqrt{x^5}$

(4) $\sqrt[5]{x^2}$

4. If the expression $\frac{1}{\sqrt{x}}$ was placed in x^a form, then which of the following would be the value of a?

$\frac{1}{x^{\frac{1}{2}}}$ $x^{-\frac{1}{2}}$

(1) -2

(2) 2

(3) $\frac{1}{2}$

(4) $-\frac{1}{2}$

5. Which of the following is *not* equivalent to $\sqrt{x^9}$?

(1) x^3 (3) $x^{9/2}$

(2) $(\sqrt{x})^9$ (4) $x^4\sqrt{x}$

$x^{\frac{9}{2}}$

$x^4\sqrt{x}$

6. The radical expression $\sqrt{50x^5y^3}$ can be rewritten equivalently as

(1) $25xy\sqrt{2xy}$ (3) $5x^2y\sqrt{2xy}$

(2) $5xy\sqrt{xy}$ (4) $10x^2y\sqrt{5xy}$

$\sqrt{25\cdot 2x^5y^3}$

$5x^2y\sqrt{2xy}$

7. **Simplify each of the following square roots that contain variables in the radicand.**

(a) $\sqrt{8x^9}$ (b) $\sqrt{75x^{16}y^{11}}$ (c) $2x\sqrt{18x^7}$ (d) $3x^2y\sqrt{98x^5y^8}$

$\sqrt{4\cdot 2x^9}$ $\sqrt{25\cdot 3x^{16}y^{11}}$ $2x\sqrt{9\cdot 2x^7}$ $3x^2y\sqrt{49\cdot 2x^5y^8}$

$2x^4\sqrt{2x}$ $5x^8y^5\sqrt{3y}$ $2x\cdot 3x^3\sqrt{2x}$ $21x^4y^5\sqrt{2x}$

$6x^4\sqrt{2x}$

8. Solve the following quadratic equation using the quadratic formula. Express the answer in **simplest radical form and rounded to the nearest hundredth.**

$5x^2 - 2x - 5 = x^2$

$4x^2 - 2x - 5 = 0$

$x = \frac{-b \pm \sqrt{b^2-4ac}}{2a}$

$a = 4$

$b = -2$

$c = -5$

$x = \frac{2 \pm \sqrt{(-2)^2 - 4(4)(-5)}}{2(4)}$

$x = \frac{2 \pm \sqrt{84}}{8}$

$x = \frac{2 \pm 2\sqrt{21}}{8}$ $x = \frac{1 \pm \sqrt{21}}{4}$

$x = 1.40$

$x = -.90$