

## SAT Warm Up

1. If  $-2x^2 + 3x - 4$  is multiplied by  $\frac{1}{2}x + 9$  what is the coefficient of  $x$  in the resulting polynomial?

$$\left(\frac{1}{2}x + 9\right)(-2x^2 + 3x - 4)$$

$$-1x^3 + \frac{3}{2}x^2 - 2x - 18x^2 + 27x - 36$$

$$-x^3 - \frac{33}{2}x^2 + 25x - 36$$

The coefficient of  $x$  is 25.

Roots and Real Numbers

Simplify the Radicals

$$\sqrt[2]{x^9} = x^4 \sqrt{x}$$

$$\sqrt[3]{8}$$

$$\sqrt[2]{36} = 6$$

$$\sqrt[3]{121} = 11$$

$$\sqrt[2]{25x^2} = 5x \sqrt[2]{x^2}$$

$$\sqrt[2]{9} = 3$$

$$\sqrt[2]{9x^2y^4}$$

$$\sqrt[2]{16x^{10}y^{18}z^{102}}$$

$$\sqrt[2]{a^{28}b^{16}c^{12}d^4}$$

$$3xy^2$$

$$4x^5y^9z^{51}$$

$$a^{14}b^8c^6d^2$$

$$\sqrt[2]{x^{13}y^{15}} = x^6y^7\sqrt{xy}$$

## Roots and Real Numbers

Sometimes the Radicand is not a perfect square.

$$\begin{array}{l} \sqrt{45} \\ \sqrt{9} \sqrt{5} \\ 3\sqrt{5} \end{array}$$

$$\begin{array}{l} \sqrt{50} \\ \sqrt{25} \cdot \sqrt{2} \\ 5\sqrt{2} \end{array}$$

$$\begin{array}{l} \sqrt{20} \\ \sqrt{4} \cdot \sqrt{5} \\ 2\sqrt{5} \end{array}$$

$$\begin{array}{l} \sqrt{8} \\ \sqrt{4} \cdot \sqrt{2} \\ 2\sqrt{2} \end{array}$$

$$\begin{array}{l} \sqrt{99} \\ \sqrt{9} \sqrt{11} \\ 3\sqrt{11} \end{array}$$

$$\begin{array}{l} \sqrt{27} \\ \sqrt{9} \cdot \sqrt{3} \\ 3\sqrt{3} \end{array}$$

## Roots and Real Numbers

$$\sqrt{x^8}$$
$$x^4$$

$$\sqrt{144x^{10}}$$
$$12x^5$$

$$\sqrt{225}$$

$$\sqrt{64x^6y^{12}}$$
$$8x^3y^6$$

$$-\sqrt{15^2b^{48}c^{10}}$$
$$-15 \cdot b^{24}c^5$$

Simplify

$$\sqrt{50}$$

$$5\sqrt{2}$$

$$\sqrt{48}$$

$$\sqrt{16} \sqrt{3}$$

$$4\sqrt{3}$$

$$\sqrt{4} \sqrt{12}$$

$$2\sqrt{12}$$

$$2\sqrt{4} \sqrt{3}$$

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

$$4\sqrt{3}$$

$$\sqrt[2]{16p^8x^7}$$

$$4p^4x^3\sqrt{x} \quad \sqrt{x^6} \cdot \sqrt{x}$$

Simplify each square root:

1.  $\sqrt{50}$

2.  $\sqrt{20}$

3.  $\sqrt{8}$

$$a^3 \cdot a^4 = a^7$$

4.  $\sqrt{99}$

5.  $\sqrt{27}$

6.  $3\sqrt{12}$

$$\begin{aligned} &3\sqrt{4}\sqrt{3} \\ &3 \cdot 2\sqrt{3} \\ &6\sqrt{3} \end{aligned}$$

7.  $\sqrt{a^3}$

8.  $\sqrt{32a^4b^5}$

9.  $5ab\sqrt{18a^5b^6}$

$$\begin{aligned} &5 \cdot 3 a b a^2 b^3 \sqrt{2a} \quad \begin{matrix} \sqrt{18} \\ \sqrt{9 \cdot 2} \\ 3\sqrt{2} \end{matrix} \\ &15 a^3 b^4 \sqrt{a} \end{aligned}$$

## Roots and Real Numbers

$$\sqrt[3]{27y^6}$$

$$\sqrt[4]{81x^{12}}$$

$$\sqrt[3]{-64x^{15}}$$

$$\sqrt[4]{-625x^4}$$

Examples:

1.  $\sqrt{32}$

2.  $\sqrt{75}$

3.  $\sqrt{44c^6}$

4.  $\sqrt{200a^3b^6}$

5.  $\sqrt{144e^{12}}$

6.  $\sqrt[3]{8y^4}$

7.  $12\sqrt{75}$

8.  $3a\sqrt{27a^3}$

9.  $\sqrt{18a^{10}b^4}$

10.  $\sqrt{15a^{12}}$

11.  $5mn^2\sqrt{25m^3}$

12.  $-2\sqrt{12d}$

13.  $-3a\sqrt{a^6b^4}$

14.  $\sqrt{24m^2}$

15.  $-4\sqrt{12a}$

Algebra 2

Name \_\_\_\_\_ ID: 1

## Assignment

Date \_\_\_\_\_ Period \_\_\_\_\_

Simplify.

1)  $\frac{\sqrt{4}}{\sqrt{5}}$

2)  $\frac{\sqrt{3}}{\sqrt{7}}$

3)  $\frac{3\sqrt{8}}{\sqrt{14}}$

4)  $\frac{\sqrt{8}}{\sqrt{24}}$

5)  $\frac{\sqrt{8}}{\sqrt{14}}$

6)  $\frac{\sqrt{5}}{\sqrt{8}}$