

Algebra - Chapter 9 Notes & Practice Prob.

$$\boxed{9.1} \quad 3^2 = 9 \quad (-3)^2 = 9$$

$$\sqrt{9} = \pm 3$$

$$\sqrt{9} = 3$$

$$\pm\sqrt{9} = \pm 3$$

$$-\sqrt{9} = -3$$

$$3, -3$$

$$\sqrt{36} = 6$$

$$\sqrt{121} = 11$$

$$\sqrt{123} \approx 11.09$$

$$\sqrt{140} \approx 11.83$$

$$\sqrt{144} = 12$$

p. 507 #40

(like 39, 41, 43)

9.1

Evaluate $\sqrt{b^2 - 4ac}$

$$40.) \quad b = 8$$

$$a = -2$$

$$c = -8$$

$$\sqrt{8^2 - 4(-2)(-8)}$$

$$\sqrt{64 - 64}$$

$$\sqrt{0}$$

$$= 0$$

$$\sqrt{8^2 + (-4)(-2)(-8)}$$

$$\sqrt{64 + (-64)}$$

$$34.) \quad \text{Solve } \sqrt{x^2} = \sqrt{36}$$

$$x = 6 \text{ or } -6$$

$$56.) \quad \frac{5x^2}{5} = \frac{500}{5}$$

$$\sqrt{x^2} = \sqrt{100}$$

$$x = 10, -10$$

$$\text{or } \pm 10$$

$$66.) \quad x^2 + 4 = 0$$

$$-4 \quad -4$$

$$x^2 = -4$$

NO solution

9.2 Simplifying radicals

$$\begin{aligned}\sqrt{4 \cdot 2} &= \sqrt{4} \cdot \sqrt{2} \\ &\downarrow \\ &2\sqrt{2}\end{aligned}$$

$$\begin{aligned}10.) \quad \sqrt{44} &= \sqrt{4 \cdot 11} \\ &= \sqrt{4} \cdot \sqrt{11} \\ &= 2\sqrt{11}\end{aligned}$$

$$22.) \quad \sqrt{\frac{7}{9}} = \frac{\sqrt{7}}{\sqrt{9}} = \frac{\sqrt{7}}{3}$$

$$\begin{aligned}18.) \quad \frac{1}{2} \sqrt{112} \\ \frac{1}{2} \sqrt{16 \cdot 7} \\ \frac{1}{2} \sqrt{16} \cdot \sqrt{7} \\ \frac{1}{2} \cdot 4 \cdot \sqrt{7} \\ 2\sqrt{7}\end{aligned}$$

$$\begin{aligned}30.) \quad 4 \sqrt{\frac{16}{4}} &= 4 \cdot \sqrt{4} \\ &4 \cdot 2 \\ &4 \cdot \frac{\sqrt{16}}{\sqrt{4}} \\ &= 4 \cdot \frac{4}{2} \\ &= 4 \cdot 2 \\ &= 8\end{aligned}$$

9.2

33)

$$8\sqrt{\frac{20}{4}}$$

 $8\sqrt{5}$

$$8 \cdot \frac{\sqrt{20}}{\sqrt{4}}$$

$$= 8 \cdot \frac{\sqrt{4 \cdot 5}}{\sqrt{4}}$$

$$= 8 \cdot \frac{\sqrt{4} \cdot \sqrt{5}}{\sqrt{4}}$$

$$y = x^2 - 2x - 3$$

Vertex (x, \quad)

↑

$$(x - 3)(x + 1)$$

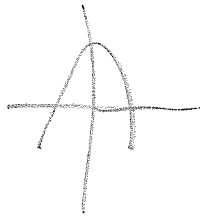
$$x = -\frac{b}{2a} = -\frac{(-2)}{2(1)} = -\frac{(-2)}{2} = 1$$

9.3 graphing

p. 521 #22

$$ax^2 + bx + c$$

$$y = -7x^2$$



a.) opens down

b.) $x = -\frac{b}{2a}$
ok vertex

$$= -\frac{0}{2(-7)}$$

$$= 0$$

$$y = -7x^2$$

$$= -7(0)^2$$

$$= 0$$

$(0, 0)$

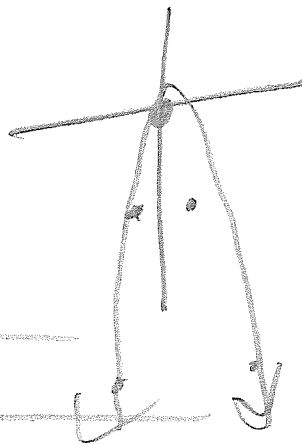
c.) $x = 0$

$$x = -\frac{b}{2a}$$

$$-7x^2$$

$$-7 \cdot 4$$

x	0	1	2
y	0	-7	-28



Use factoring to solve:

Solve $x^2 + 9x + 14$

$$(x+7)(x+2)$$

(Chapt. 10)

$$x = -7 \text{ and } -2$$

9.5
$$X = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Solve: $x^2 + 9x + 14$

$$x = \frac{-9 \pm \sqrt{81 - 4 \cdot 1 \cdot 14}}{2(1)}$$