

Announcement:

Chapter 10 Test on
Wednesday, 5/30!

Homework Review - 10.3

$$x^2 + 5x - 24 = 0$$

$$(-8)^2 + 5(-8) - 24 = 0$$

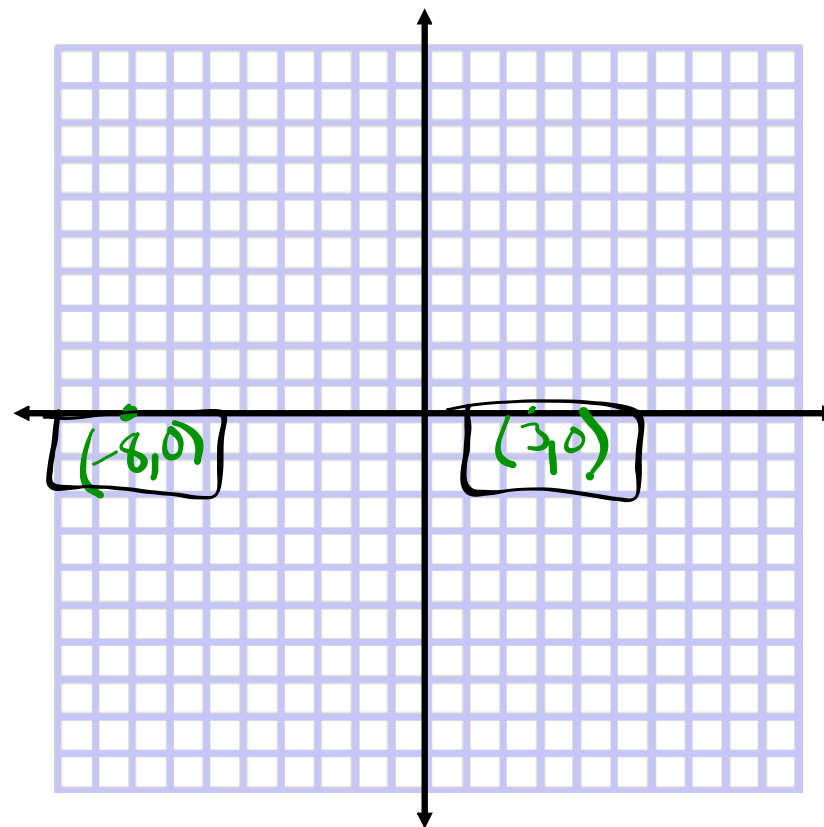
$$64 + -40 - 24 = 0$$

$$0 = 0 \checkmark$$

$$3^2 + 5(3) - 24 = 0$$

$$9 + 15 - 24 = 0$$

$$0 = 0 \checkmark$$



$$-x^2 - 6x = 0$$

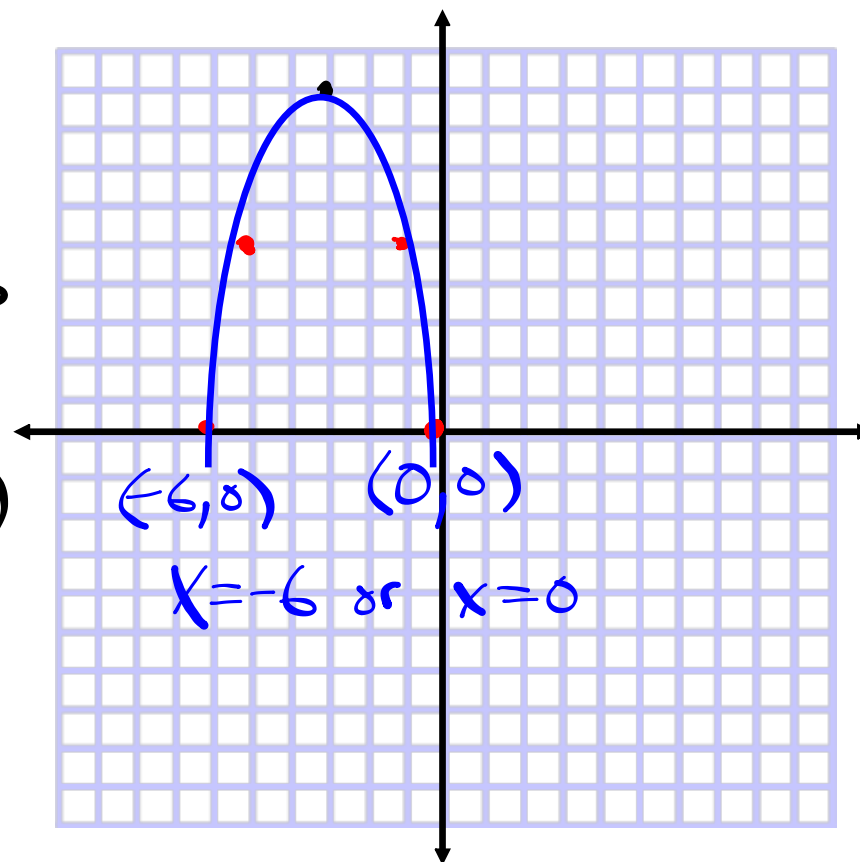
$$x = \frac{-b}{2a} = \frac{-(-6)}{2(-1)} = -3$$

$$-(-3)^2 - 6(-3) \quad (-3, 9)$$

$$-9 + 18 = 9$$

$$-(-1)^2 - 6(-1) = y$$

$$-1 + 6 = 5$$

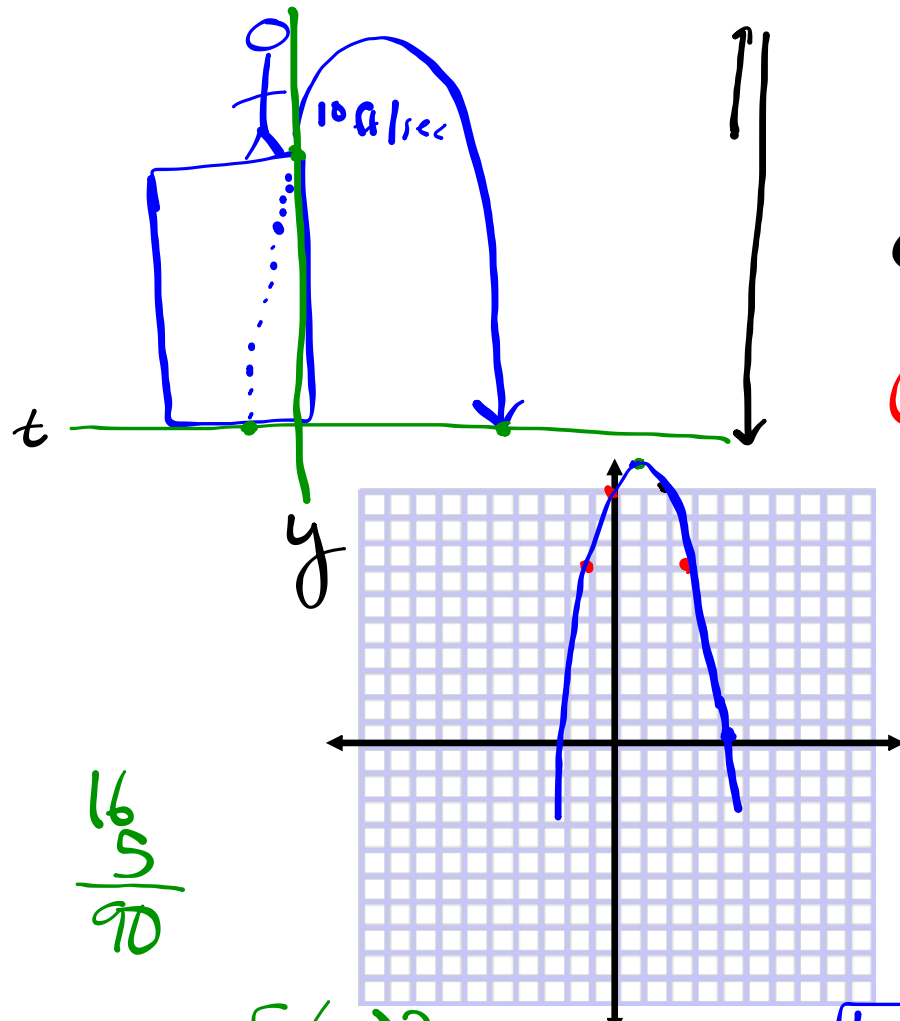


$$2x^2 + 9x - 5 = 0 \quad x = -2$$

$$2(-2)^2 + 9(-2) - 5 = 0$$

$$8 + -18 - 5 = 0$$

$$8 + -23 \neq 0$$



$$y = \frac{1}{2} - 9.8t^2 + 10t + 50$$

$$0 = -5t^2 + 10t + 50$$

$$x = \frac{-b}{2a} = \frac{-10}{2(-5)} = +1$$

$$\begin{aligned} y &= -5(1)^2 + 10(1) + 50 \\ &= -5 + 10 + 50 \\ &= 55 \end{aligned}$$

$$\begin{aligned} &-5(2)^2 + 10(2) + 50 \\ &-20 + 20 + 50 \end{aligned}$$

$$\begin{aligned} &-5(4)^2 + 10(4) + 50 \\ &-80 + 40 + 50 = 10 \end{aligned}$$

$$\begin{aligned} &y = -5(3)^2 + 10(3) + 50 \\ &= -45 + 30 + 50 \\ &= 35 \end{aligned}$$

$$(3.5, -2.25)$$

$$x^2 - 7x + 10 = 0$$

$$x = \frac{-b}{2a} = \frac{-(-7)}{2} = 3.5$$

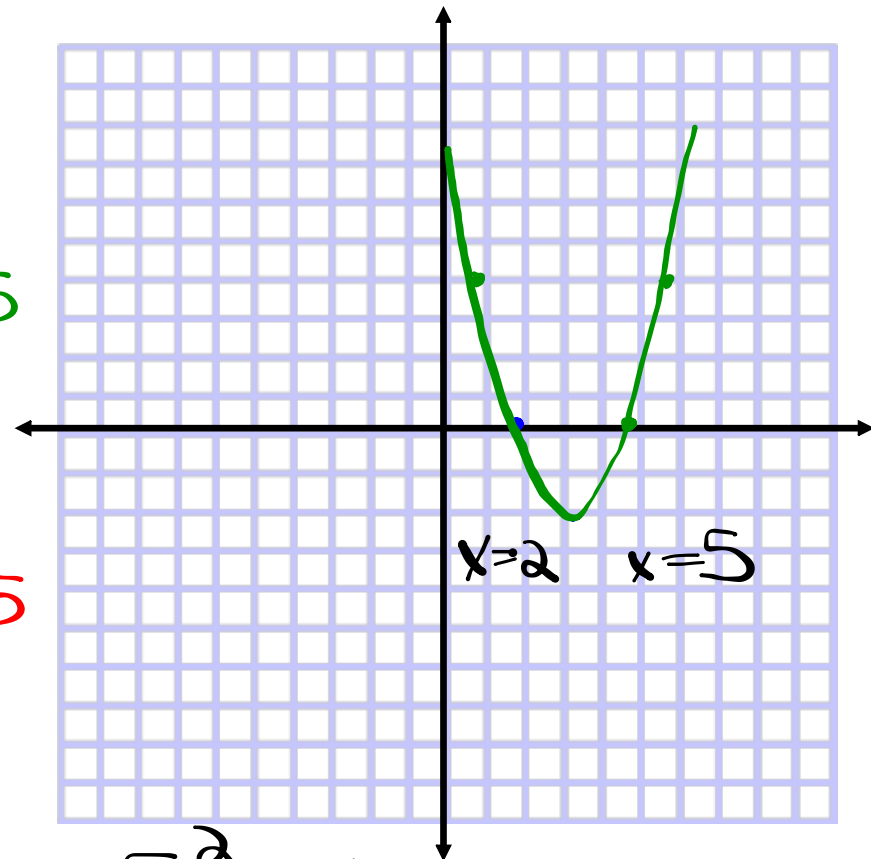
$$(3.5)^2 - 7(3.5) + 10$$

$$12.25 - 24.5 + 10 = -2.25$$

$$2^2 - 7(2) + 10 = y$$

$$4 - 14 + 10 = 0$$

$$1^2 - 7(1) + 10 = 4$$



$$5^2 - 7(5) + 10 = 0$$

$$25 - 35 + 10 = 0$$

$$0 = 0 \checkmark$$

Solve a Quadratic using Square Roots

$$ax^2 + c = 0$$

Won't work if $b \neq 0$

~~$$ax^2 + bx + c$$~~

Isolate x^2 on one side of the equation

$$2x^2 - 24 = 8$$

$$\quad -8 \quad -8$$

$$2x^2 - 32 = 0$$

$$\quad +32 \quad +32$$

$$2x^2 = 32$$

$$\frac{2x^2}{2} = \frac{32}{2}$$

$$\sqrt{x^2} = \sqrt{16}$$

$$x = 4 \text{ or } -4$$

Find the square root of each side
(what are the rules of finding square roots?)

square root is always positive

$$\sqrt{4} = 2 \quad \sqrt{16} = 4 \quad \sqrt{64} = 8$$

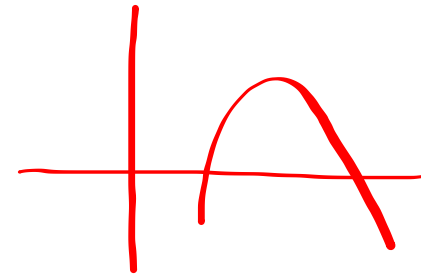
$$+\sqrt{4} = 2, -2 \quad +\sqrt{16} = 4, -4 \quad +\sqrt{64} = 8, -8$$

$$(5^2) = \sqrt{25} = 5$$

$$(-5^2) = \sqrt{25} = 5$$

$$x^2 = 25$$

$$x = \pm \sqrt{25}$$



Look at the equation to determine the number of solutions:

$$x^2 = d$$

$$x^2 = 4, x = \pm\sqrt{4} \quad d > 0 \quad \text{two solutions (+/-)}$$

$$x^2 = 0, x = 0 \quad d = 0 \quad \text{one solution (0)}$$

$$x^2 = -4 \quad d < 0 \quad \text{no solution}$$

$$\sqrt{(-16)} \quad \begin{array}{l} 4 \cdot 4 = 16 \quad 4^2 = 16 \\ (-4)(-4) = 16 \quad (-4)^2 = 16 \end{array}$$

$$4. \quad 3x^2 - 60 = 87$$

$$+60 \quad +60$$

$$3x^2 = 147$$

$$\frac{3}{3} \quad \frac{147}{3}$$

$$\sqrt{x^2 = 49}$$

$$x = \pm \sqrt{49}$$

$$x = 7 \text{ or } x = -7$$

$$7, -7$$

$$5. \quad 2x^2 - 33 = 17$$

$$2x^2 = 50$$

$$\sqrt{x^2 = 25}$$

$$x = \pm \sqrt{25}$$

$$x = 5, x = -5$$

$$6. \quad 5x^2 - 200 = 205$$

$$+200 \quad +200$$

$$5x^2 = 405$$

$$\frac{5}{5} \quad \frac{405}{5}$$

$$\sqrt{x^2 = 81}$$

$$x = \pm \sqrt{81}$$

$$x = 9 \quad x = -9$$

Decimals? Use a calculator and round

$$x^2 + 15 = 23$$

$$-15 \quad -15$$

$$\sqrt{x^2} = 8$$

$$x = \pm \sqrt{8}$$

$$x = 2.83 \text{ or } x = -2.83$$

16. $48 = 14 + 2x^2$

17. $8x^2 = 50$

18. $3x^2 + 23 = 18$

Flower Seed A manufacturer is making a cylindrical can that will hold and dispense flower seeds through small holes in the top of the can. The manufacturer wants the can to have a volume of 42 cubic inches and be 6 inches tall. What should the diameter of the can be? (*Hint:* Use the formula for volume, $V = \pi r^2 h$, where V is the volume, r is the radius, and h is the height.) Round your answer to the nearest inch.



Stockpile You can find the diameter D (in feet) of a conical pile of sand, dirt, etc. by using the formula $V = 0.2618hD^2$ where h is the height of the pile (in feet) and V is the volume of the pile (in cubic feet). Find the diameter of each stockpile in the table. Round your answers to the nearest foot.

Stockpile	Height (ft)	Diameter (ft)	Volume (ft ³)
A	10	?	68
B	15	?	230
C	20	?	545

Homework:

p. 655, 3-12 by 3, 17-26 by 3, 33-39 odd, 59