

Today's Learning Goal(s):

By the end of the class, I will be able to:

- a) consolidate understanding of quadratic relations and equations and be prepared for the Unit 6 Summative.

Today's practice:

Remember: to find the roots means to solve for the x -intercepts.

To solve for the x -intercepts, ALWAYS try to factor the equation first, before trying the Quadratic Formula.

pp. 318-319 #1^b, 2, 4^{bd}, 5^{abd}, 6^{acfg}, 8, 9^a, 13, 16*no rounding, 17

p. 317 #13

p.318

$$2b) 9y^2 - 1 = 0$$

$$(3y - 1)(3y + 1) = 0$$

$$\downarrow$$
$$3y - 1 = 0 \quad \text{or} \quad 3y + 1 = 0$$

$$3y = 1$$
$$y = \frac{1}{3}$$

$$3y = -1$$
$$y = -\frac{1}{3}$$

p. 318

$$4b) y = -x^2 - x + 20 \rightarrow$$

$$a = -1 \quad b = -1 \quad c = 20$$

x-ints

v. -

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

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

$$= -\frac{1}{2}$$

$$y = -\left(-\frac{1}{2}\right)^2 - \left(-\frac{1}{2}\right) + 20$$

$$= -\frac{1}{4} + \frac{1}{2} + 20$$

$$= -\frac{1}{4} + \frac{2}{4} + \frac{80}{4}$$

$$= \frac{81}{4}$$

$$\therefore v \left(-\frac{1}{2}, \frac{81}{4}\right)$$

$$\uparrow (-0.5, 20.25)$$

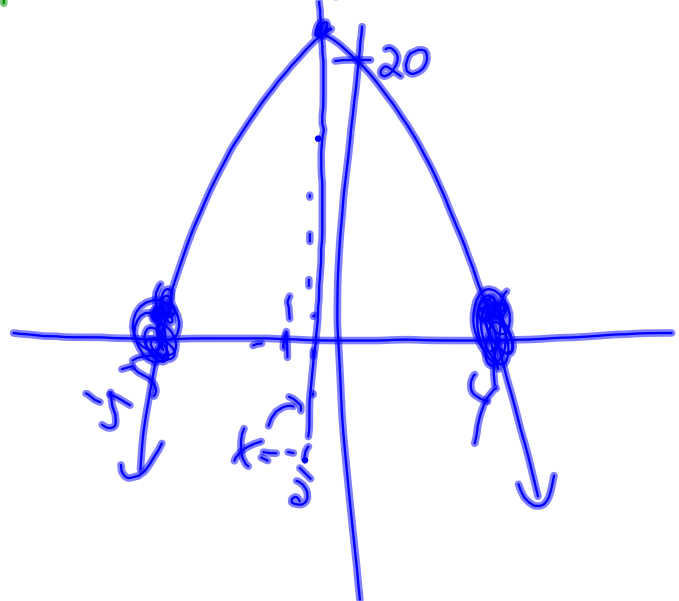
$$y = -1(x^2 + x - 20)$$

$$0 = -1(x - 4)(x + 5)$$

$$\downarrow$$

$$x = 4 \text{ or } x = -5$$

x-ints \uparrow
 $U(-\frac{1}{2}, 20\frac{1}{4})$



p. 318
6c) $4m^2 - 10 = 0$
 $a=4$ $b=0$ $c=-10$

$$\begin{aligned} &\rightarrow 4m^2 = 10 \\ &m^2 = \frac{10}{4} \\ &m^2 = \frac{5}{2} \\ &m = \pm \sqrt{\frac{5}{2}} \end{aligned}$$

p. 318

6g) $2(m-1)^2 = (m+2)(m+1)$

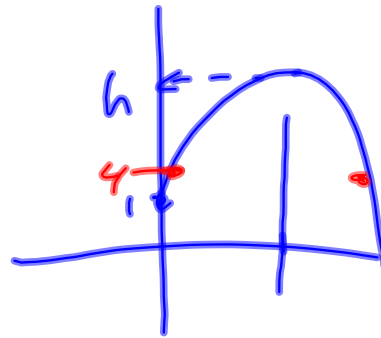
$$2(m^2 - 2m + 1) = m^2 + 3m + 2$$

$$\begin{aligned} \underline{2m^2} - \underline{4m} + \underline{2} - \underline{m^2} - \underline{3m} - \underline{2} &= 0 \\ m^2 - 7m &= 0 \end{aligned}$$

$$m(m-7) = 0$$

$$\begin{aligned} \downarrow & \quad \searrow \\ m=0 & \quad \text{or} \quad m-7=0 \\ & \quad \quad \quad m=7 \end{aligned}$$

$$\begin{aligned}
 8) \quad h &= -5d^2 + 20d + 1 \\
 &= -5(d^2 - 4d) + 1 \\
 &= -5(d^2 - 4d + 4 - 4) + 1 \\
 &= -5(d-2)^2 + 20 + 1 \\
 &= -5(d-2)^2 + 21
 \end{aligned}$$



$$\begin{aligned}
 d &= \frac{-b}{2a} \\
 &= \frac{-(20)}{2(-5)} \\
 &= \frac{-20}{-10} \\
 &= 2
 \end{aligned}$$

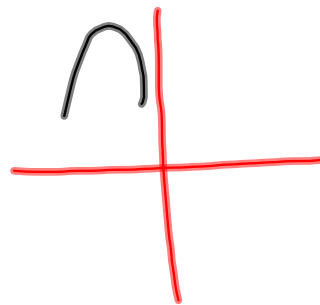
$\therefore v(2, 21)$
 \therefore max height is 21 m.

$$\begin{aligned}
 h &= -5(2)^2 + 20(2) + 1 \\
 &= -5(4) + 40 + 1 \\
 &= -20 + 40 + 1 \\
 &= 21
 \end{aligned}$$

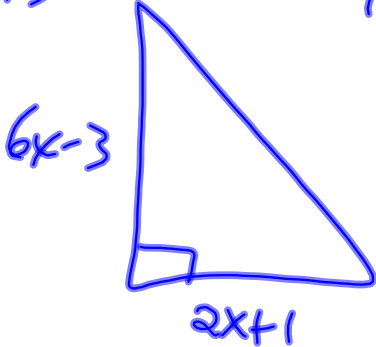
$$9a) \quad y = -2(x+1)^2 + 18$$

how many x-ints = 0

$$v(-1, 18)$$



13



$A = 240 \text{ m}^2$ (2d)

$$A = \frac{bh}{2}$$

$$2(240) = \frac{(2x+1)(6x-3)}{2}$$

$$480 = 12x^2 - 6x + 6x - 3$$

$$480 = 12x^2 - 3$$

$$0 = 12x^2 - 3 - 480$$

$$= 12x^2 - 483$$

$$483 = 12x^2$$

$$\frac{483}{12} = x^2$$

$$\pm \sqrt{\frac{483}{12}} = \sqrt{x^2}$$

$$x = \pm \sqrt{\frac{483}{12}}$$

$$\approx \pm 6.344$$

$$\approx \pm 6.34$$

Attachments

PopGoestheWeasel.mid