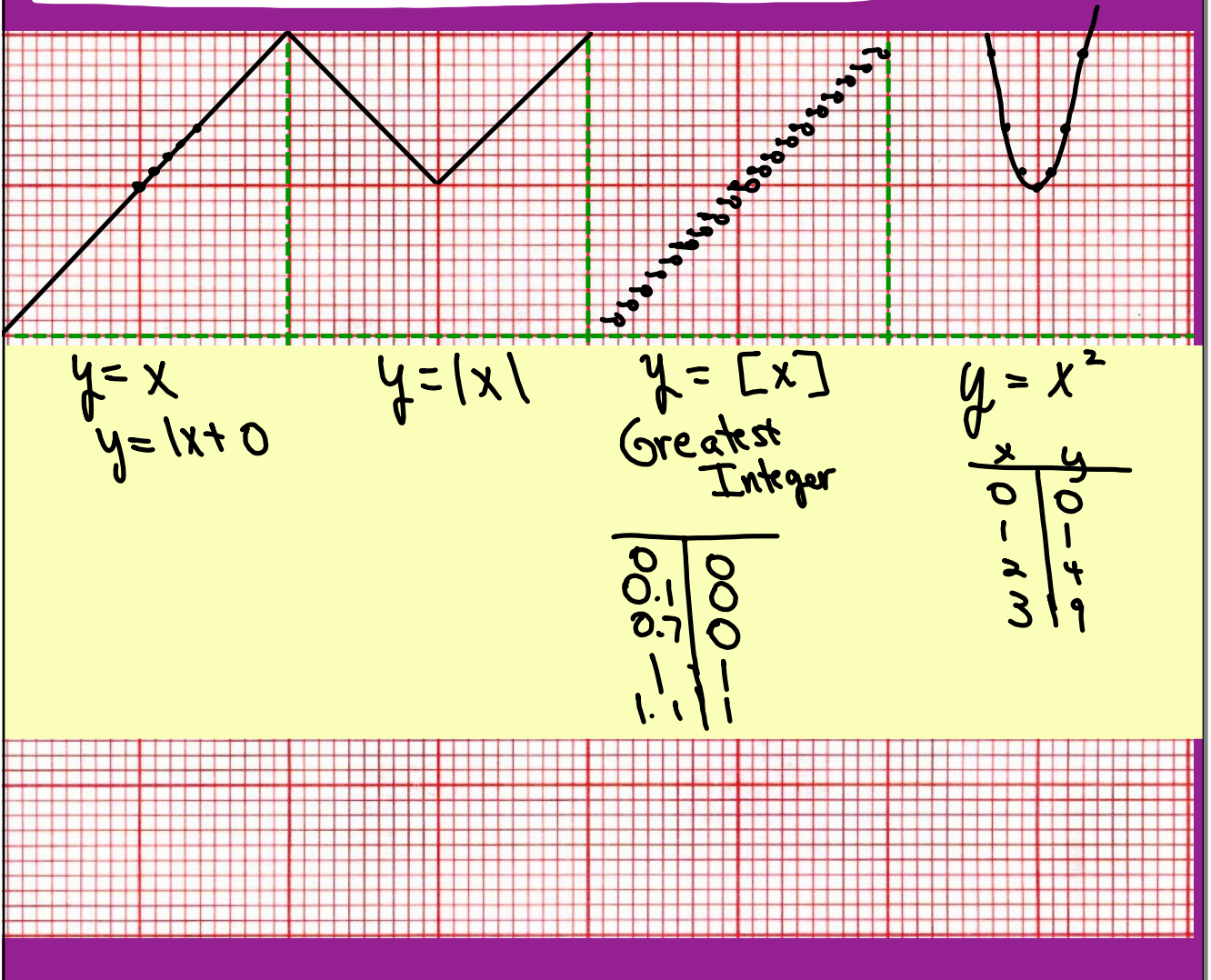


SEMESTER REVIEW DAY 2



$$y \leq -3|x-4| + 5$$

$\uparrow$ right 4 $\uparrow$ up 5

$$y = \frac{1}{2}(x+2)^2 - 4$$

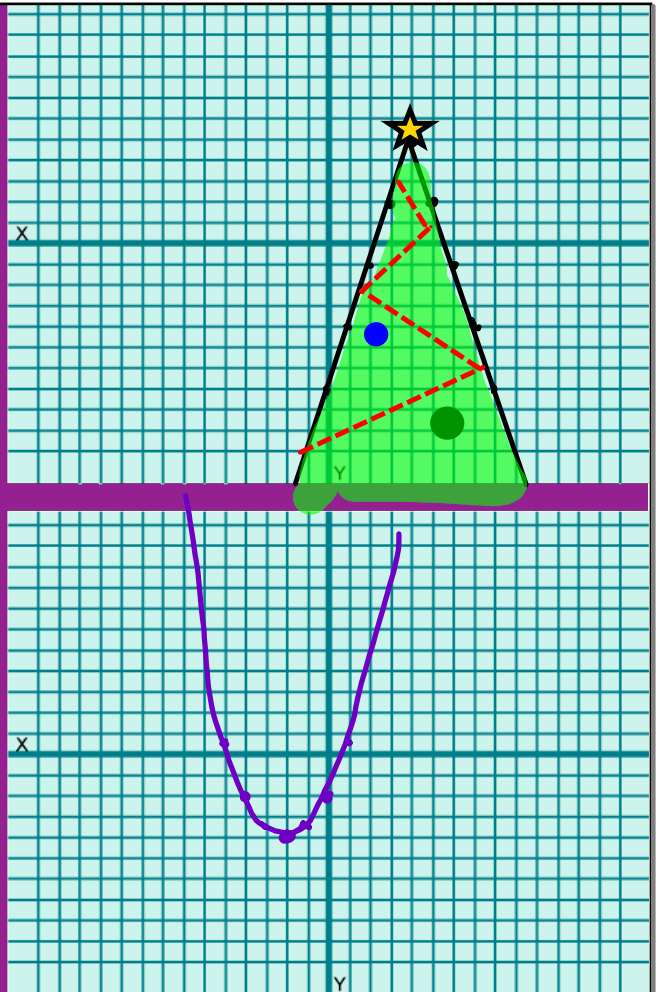
$(-2, -4)$

left 2

Down 7

Wide
 $x = -2$

0	0
1	1 1.2
2	4 2
3	9 4.5



$$\begin{aligned} 2x - 7y &= -24 \\ 3x + 4y &= -7 \end{aligned}$$

Cramer's Rule

$$x = \frac{\begin{vmatrix} -24 & -7 \\ -7 & 4 \end{vmatrix}}{\begin{vmatrix} 2 & -7 \\ 3 & 4 \end{vmatrix}} = \frac{-96 - 49}{8 - (-21)} = \frac{-145}{29} = -5$$

$$y = \frac{\begin{vmatrix} 2 & -24 \\ 3 & -7 \end{vmatrix}}{\begin{vmatrix} 2 & -7 \\ 3 & 4 \end{vmatrix}} = \frac{-14 + 72}{29} = \frac{58}{29} = 2$$

(-5, 2)

Matrix Eq.

$$2x - 7y = -24$$

$$3x + 4y = -7$$

$$\begin{bmatrix} 2 & -7 \\ 3 & 4 \end{bmatrix} \cdot \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} -24 \\ -7 \end{bmatrix}$$

$$= \begin{bmatrix} 2 & -7 \\ 3 & 4 \end{bmatrix}^{-1} \cdot \begin{bmatrix} -24 \\ -7 \end{bmatrix}$$

$$\begin{aligned} & \sqrt[4]{28} + \sqrt[9]{63} - \sqrt[49]{98} \\ & 2\sqrt{7} + 3\sqrt{7} - 7\sqrt{2} \\ & = 5\sqrt{7} - 7\sqrt{2} \end{aligned}$$

$$\frac{6}{3\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}} = \frac{6\sqrt{5}}{15} = \frac{2\sqrt{5}}{5}$$

$$\frac{3-2\sqrt{3}}{4+\sqrt{3}} \cdot \frac{(4-\sqrt{3})}{(4-\sqrt{3})}$$

$$= \frac{12 - 3\sqrt{3} - 8\sqrt{3} + 6}{16 - 3}$$
$$\frac{18 - 11\sqrt{3}}{13}$$

$$\begin{aligned} i &= i \\ i^2 &= -1 \\ i^3 &= -i \\ i^4 &= 1 \end{aligned}$$

$$(3+2i) + (4+7i) = -1+9i$$

$$\begin{aligned} 3i^{227} + i^{84} - 2i^{77} \\ 3(-i)^{0.75} + 1 - 2(i) \\ -3i + 1 - 2i \\ -5i + 1 \end{aligned}$$

$$(4+i)(6-5i)$$

FoIL

$$24 - 20i + 6i + 5i^2$$

QUADRATICS

Like (22)

Find vertex

$$f(x) = 3x^2 + 6x - 11$$

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

$y = \text{sub in } x$

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

narrow
upward

line of sym. $x = -1$

$$\begin{aligned} y &= 3(-1)^2 + 6(-1) - 11 \\ &= 3 - 6 - 11 \\ &= -14 \end{aligned} \quad (-1, -14)$$

$$y = \frac{3}{2}(x-4)(x+2)$$

$$\begin{aligned} x-4 &= 0 & x+2 &= 0 \\ x &= 4 & x &= -2 \end{aligned}$$

$$\text{Vertex: } x = \frac{p+q}{2}$$

$y = \text{sub in } x$

$$\text{Vertex: } x = \frac{4 + -2}{2} = 1$$

$$\begin{aligned} y &= \frac{3}{2}(1-4)(1+2) \\ &= \frac{3}{2}(-3)(3) \end{aligned}$$

$$= -\frac{27}{2}$$

$$(1, -27/2)$$

Solving Quadratics

- 1) Find zeros on calculator
- 2) Factoring
- 3) Quadratic Formula

$$2x^2 - 7x - 15 = 0$$

$$(2x+3)(x-5) = 0$$

$\begin{array}{cc} 1 & 15 \\ 5 & 3 \end{array}$
 $\begin{array}{c} +3x \\ -10x \end{array}$

$$2x+3=0 \quad x-5=0$$

$$2x = -3$$

$$x = -3/2 \quad x = 5$$

$$h(t) = \frac{1}{2}at^2 + v_0t + s_0$$

$$a = -9.8 \frac{m}{s^2} \quad a = -32 \frac{ft}{s^2}$$



$$h(t) = \frac{1}{2}(-9.8)t^2 + 7000t + 1$$

$$= -4.9t^2 + 7000t + 1$$

How high?

Find vertex.

$$t = -b/2a$$

How many seconds to fall to ground
 $h = 0$

$$0 = -4.9t^2 + 7000t + 1$$

quadr. formula