

1) Simplify

$$\begin{aligned} & \text{4-15} \\ & -2(4 - 5 \cdot 3) + 4 - 3^2 \\ & -2(-11) + 4 - 3^2 \\ & -2(-11) + 4 - 9 \\ & 22 + 4 - 9 \end{aligned}$$

26 - 9

17

Name:
Period:

2) Simplify

$$-(2x - 6) - 6(2x - 4) + 7x$$

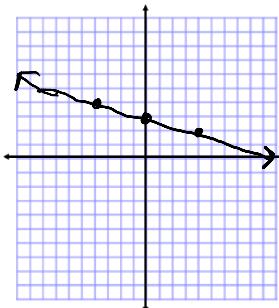
$$\begin{aligned} & -2x + 6 - 12x + 24 + 7x \\ & -2x - 12x + 7x + 6 + 24 \\ & \boxed{-7x + 30} \end{aligned}$$

3) Solve

$$\begin{aligned} 7 - 3x + 12 &= 4x + 1 \\ -3x + 19 &= 4x + 1 \\ -3x + 19 &= 4x + 1 \\ \underline{-4x} &\quad \underline{-4x} \\ -7x + 19 &= 1 \\ -19 &\quad -19 \end{aligned}$$

$$-7x = -18$$

$$x = \frac{18}{7} = 2.57$$



4) Graph the linear equation

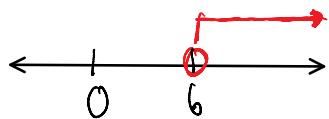
$$y = -\frac{1}{4}x + 3$$

x	y
0	3
4	2
-4	4

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

5) Solve and graph on a number line

$$-\frac{2}{3}x + 10 < 6$$



$$(-\frac{3}{2}) - \frac{2}{3}x < -4 \quad (-\frac{3}{2})$$

$$\begin{aligned} x &> \frac{12}{2} \\ x &> 6 \end{aligned}$$

6) Solve the system of linear equations

$$\begin{aligned} -2(x + y = 12) \\ 2x + 3y = 31 \end{aligned} \quad + \quad \begin{aligned} -2x - 2y = -24 \\ 2x + 3y = 31 \end{aligned}$$

$$\begin{aligned} x + y &= 12 \\ x + 7 &= 12 \\ \underline{x} &\quad \underline{-7} \\ y &= 5 \end{aligned}$$

$$(5, 7)$$

7) Graph the system of linear inequalities

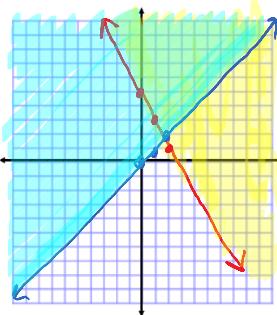
$$y \geq -2x + 5$$

$$y \geq x$$

x	y
0	5
1	3
2	1

$$y \geq x$$

x	y
0	0
1	1
2	2



8) Find the zeroes of the quadratic function

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$$0 = -x^2 + 2x + 8$$

$$-1(x^2 - 2x - 8)$$

$$\begin{aligned} a &= 1 \\ b &= -2 \\ c &= -8 \end{aligned}$$

~~$x = -\frac{b}{2a} = -\frac{-2}{2 \cdot 1} = 1$~~

~~$x = -\frac{b}{2a} = -\frac{-2}{2 \cdot -1} = -1$~~

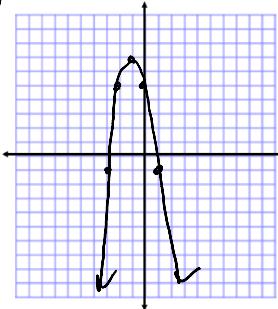
9) Graph the quadratic function

$$0 = -1(x - 4)(x + 2)$$

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

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

$$x = 4 \text{ and } x = -2$$



vertex:
 $(-1, 7)$

$$\begin{aligned} 1(a) &= -2 \\ 3(a) &= -6 \\ 5(a) &= -10 \end{aligned}$$

$$\begin{aligned} ① \quad y &= -2x^2 - 4x + 5 \\ x &= \frac{-b}{2a} = \frac{-(-4)}{2(-2)} = \frac{4}{-4} = -1 \end{aligned}$$

$$\begin{aligned} ② \quad y &= -2(-1)^2 - 4(-1) + 5 = -2(1) + 4 + 5 \\ y &= -2 + 4 + 5 = 7 \end{aligned}$$

10) Simplify the radical

$$\sqrt{20} = \sqrt{4 \cdot 5} = \sqrt{4} \cdot \sqrt{5} = 2\sqrt{5}$$