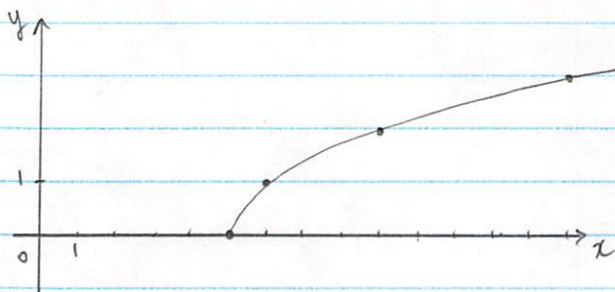


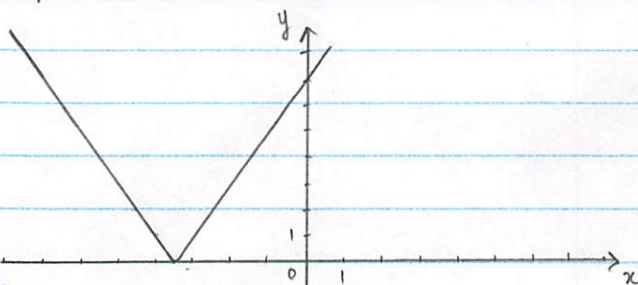
INTRODUCTION REVIEW

PC12

a) Graph: $y = \sqrt{x-5}$

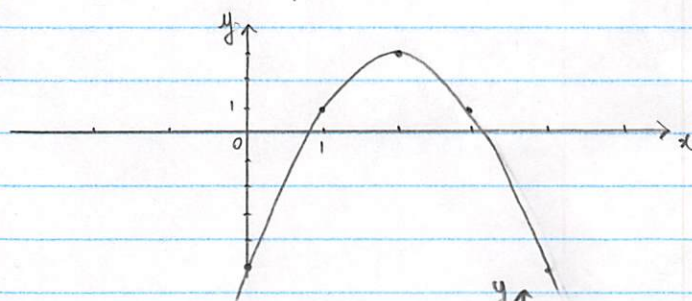


$$y = |2x + 7|$$



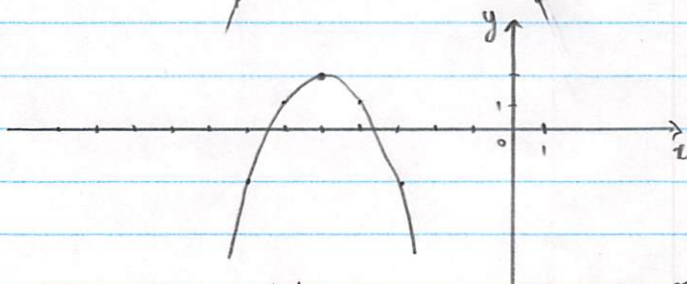
$$y = -2x^2 + 8x - 5$$

vertex: $-\frac{b}{2a} = \frac{-8}{-4} = 2$
 $(2, 3)$



$$y = -(x+5)^2 + 2$$

vertex: $(-5, 2)$

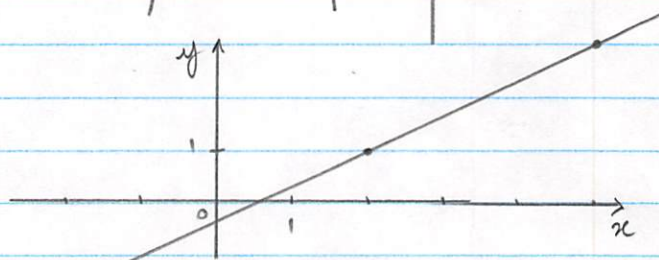


$$2x - 3y = 1$$

$$-3y = -2x + 1$$

$$y = \frac{2}{3}x - \frac{1}{3}$$

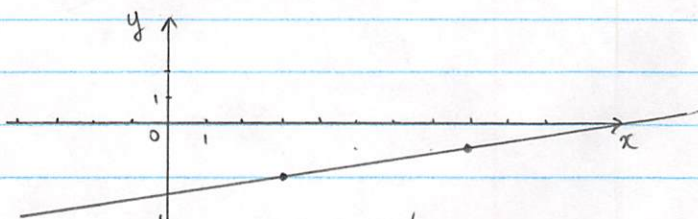
x	2
y	1



$$y + 2 = \frac{1}{5}(x - 3)$$

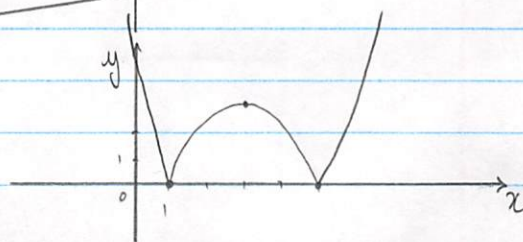
$$m = \frac{1}{5}$$

point $(3, -2)$



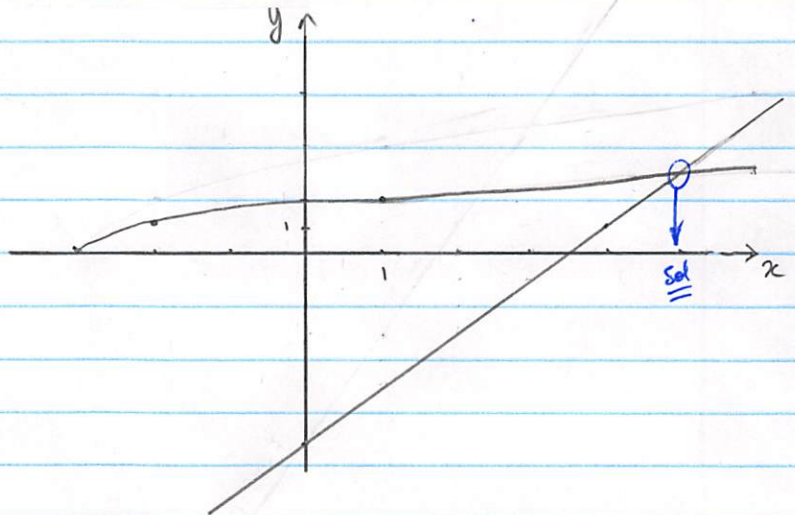
$$y = |x^2 - 6x + 5|$$

vertex: $(3, -3)$
 $(x-1)(x-5)$



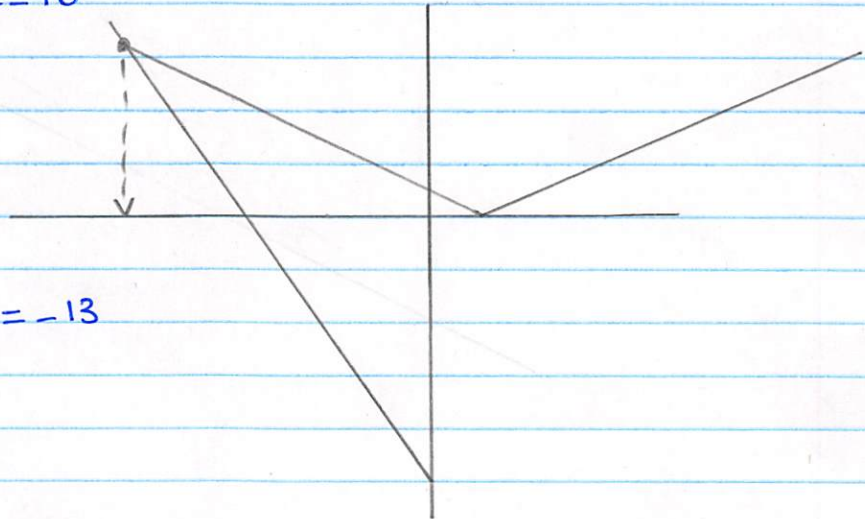
Solve graphically

• $\sqrt{x+3} = 2x - 7$



Solution: $x \approx 4.9$

• $|2x-3| = -3x-10$



Solution: $x = -13$

Solve algebraically

• $\sqrt{x+3} = 2x-7$ Restrictions: $x \geq -3$

Resolution: $x+3 = (2x-7)^2$
 $x+3 = 4x^2 - 28x + 49$
 $4x^2 - 29x + 46 = 0$
 $\Delta = 105$
 $x = \frac{29 \pm \sqrt{105}}{8}$

⚠ TESTS

$x \approx 2.3$ x

$x \approx 4.9$ ✓

$x \approx 2.3$ $x \approx 4.9$

$$\bullet |2x-3| = -3x-10$$

$$2x-3 = -3x-10$$

$$5x = -7$$

$$x = -\frac{7}{5}$$

$$-2x+3 = -3x-10$$

$$\boxed{x = -13}$$

TESTS x

✓

$$\bullet x^2 - 5x = 2(x+3)$$

$$x^2 - 5x = 2x + 6$$

$$x^2 - 7x - 6 = 0$$

$$\Delta = 49 - 4(-6) = 73$$

$$\boxed{x = \frac{7 \pm \sqrt{73}}{2}}$$

(2 sol)

$$\bullet \frac{5}{4}(x+1) = 3 - 2(x+4)$$

$$\frac{5}{4}x + \frac{5}{4} = 3 - 2x - 8$$

$$5x + 5 = 12 - 8x - 32$$

$$13x = -25$$

$$\boxed{x = -\frac{25}{13}}$$

•

• $\sqrt{x-3} = x+7$ Restrictions: $x \geq 3$

Resolution: $x-3 = (x+7)^2$
 $x-3 = x^2 + 14x + 49$
 $x^2 + 13x + 52 = 0$
 $\Delta = 169 - 4(52) = -39 < 0$ (no solution)

No solution!

• $\frac{x}{x-2} + \frac{2}{x-4} = \frac{4x-12}{x^2-6x+8}$

Restrictions: $x-2 \neq 0$ $x-4 \neq 0$ $x^2-6x+8 \neq 0$
 $x \neq 2$ $x \neq 4$ $(x-4)(x-2) \neq 0$
 $x \neq 4$ $x \neq 2$

$D = \mathbb{R} \setminus \{2, 4\}$

Resolution: $\frac{x(x-4)}{(x-2)(x-4)} + \frac{2(x-2)}{(x-2)(x-4)} = \frac{-x-2}{(x-2)(x-4)}$

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

$\Delta = 1 - 4(-2) = 9$

$x = \frac{1 \pm 3}{2}$

$x = -1$ or ~~$x = 2$~~
restr x