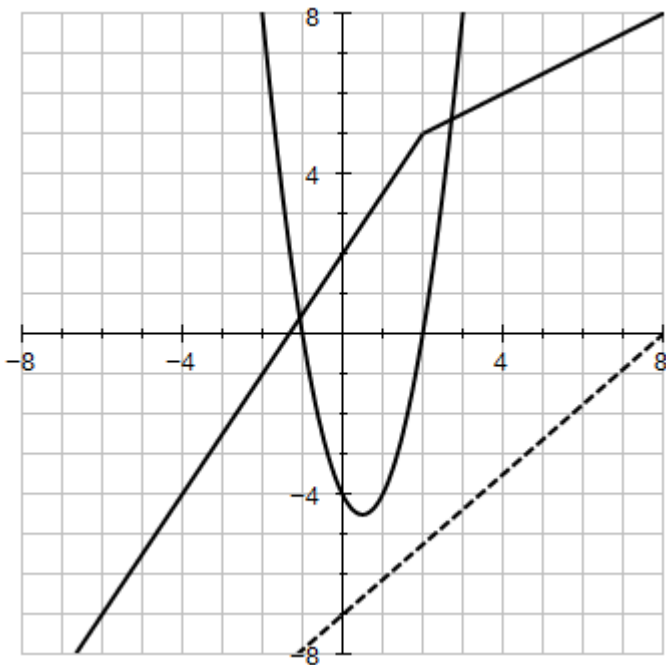
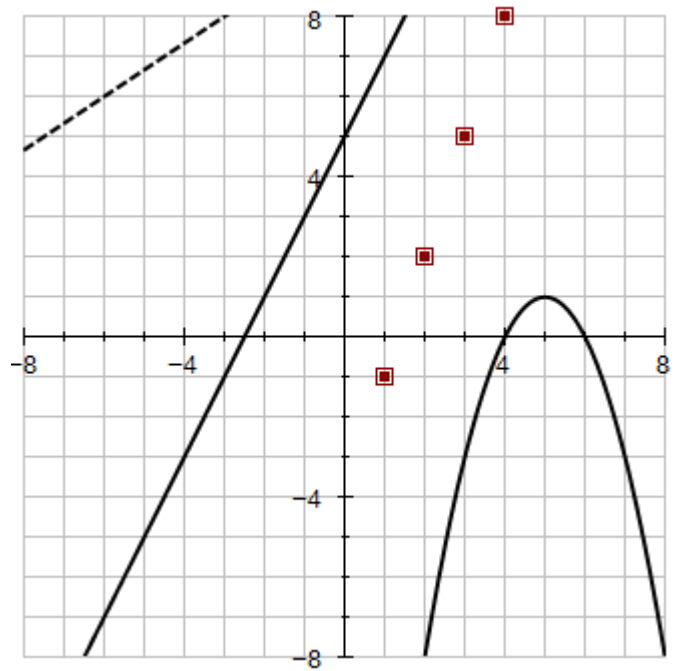


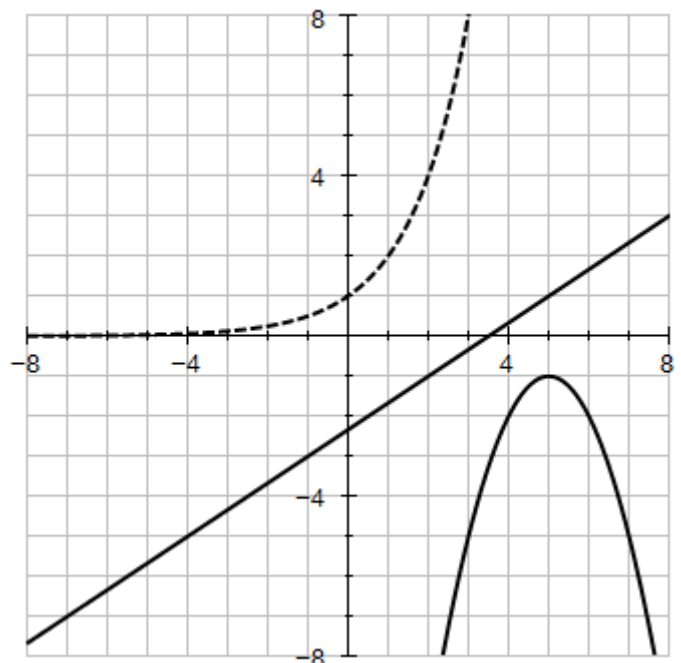
Y11 Harder Graphs Practice #1

1. For the grid to the right:
 - a. What is the equation of the solid line?
 - b. What is the equation of the dotted line?
 - c. What pattern gives a plot of those dots?
 - d. Where will the parabola cross the y axis?
Give full reasons.



2. For the grid to the left:
 - a. What is the equation of the solid line?
 - b. What is the equation of the dotted line?
 - c. What is the lowest point of the parabola? *Give full reasons.*
 - d. What is the equation of the parabola if it is moved two units left, and five up?

3. For the grid to the right:
 - a. What are the intercepts of the line?
Give full reasons.
 - b. What is the equation of the parabola?
 - c. How far down is the parabola when it is 9 units wide?
 - d. What is the equation of the dotted curve?



Answers: Y11 Harder Graphs Practice #1

1.

a. $y = 2x + 5$

b. $y = \frac{2}{3}x + 10$

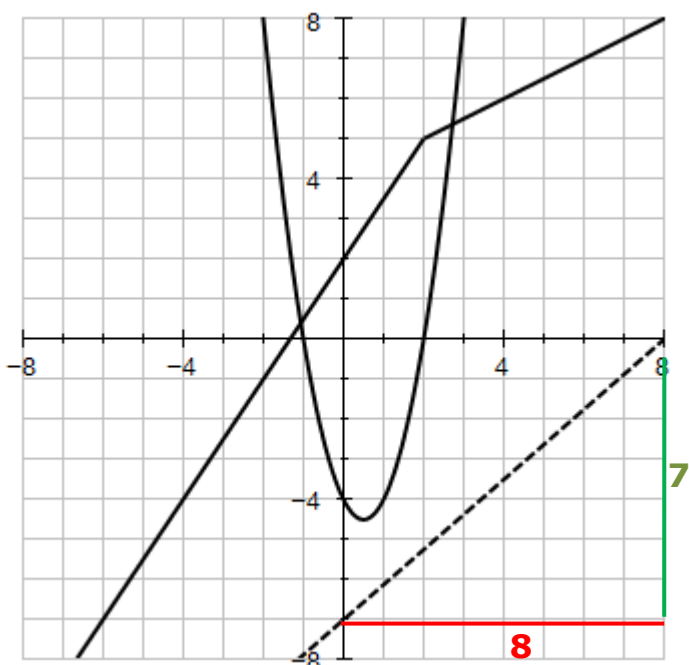
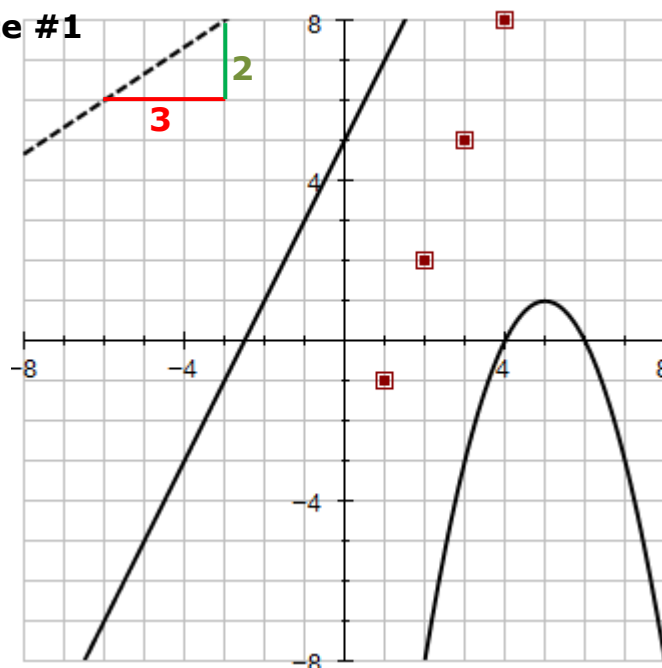
c. $t_n = 3n - 4$ from line $y = 3x - 4$

d. $y = -(x - 4)(x - 6)$

[or $y = -(x - 5)^2 + 1$]

Putting in $x = 0$ (which is y-axis)

$y = -(0 - 4)(0 - 6) = -24 \Rightarrow (0, -24)$



3.

a. $y = \frac{2}{3}x + c$ and goes through $(5, 1)$

So $y = \frac{2}{3}x + \frac{-7}{3}$ as $1 = \frac{2}{3} \times 5 + \frac{-7}{3}$

Put in x and $y = 0 \Rightarrow (0, \frac{-7}{3})$ and $(3.5, 0)$

b. $y = -(x - 5)^2 - 1$

c. 9 wide $\Rightarrow \pm 4.5$ from centre of $x = 5$

$y = -(9.5 - 5)^2 - 1 = -21.25$

d. doubles for every one across $\Rightarrow y = 2^x$

2.

a. $y = 1.5x + 2$ for $x \leq 2$

$y = 0.5x + 4$ for $x > 2$

b. $y = \frac{7}{8}x - 7$

c. $y = 2(x - 2)(x + 1)$

Putting in $x = 0.5$ (which is middle point)

$y = 2(0.5 - 2)(0.5 + 1) = 4.5 \Rightarrow (0.5, 4.5)$

d. $y = 2(x - 2 - 2)(x + 1 - 2) + 5$

$y = 2(x - 4)(x - 1) + 5$

[which is also: $y = 2x^2 - 10x + 13$]

