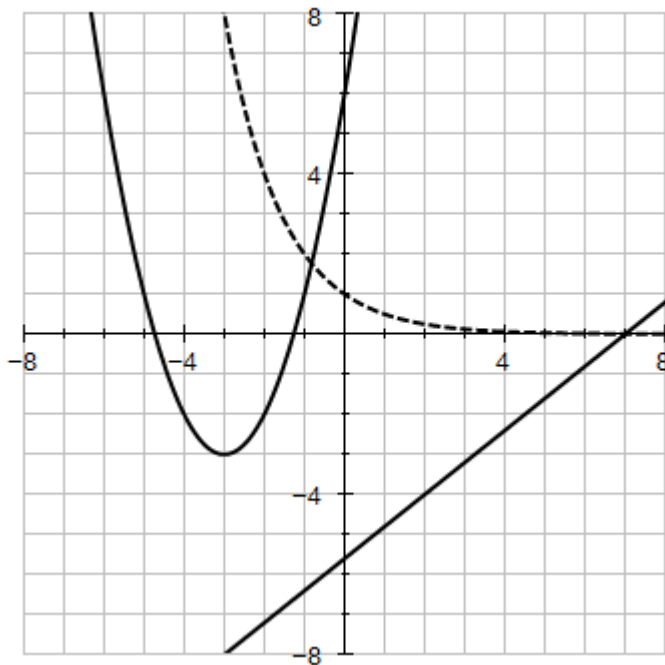
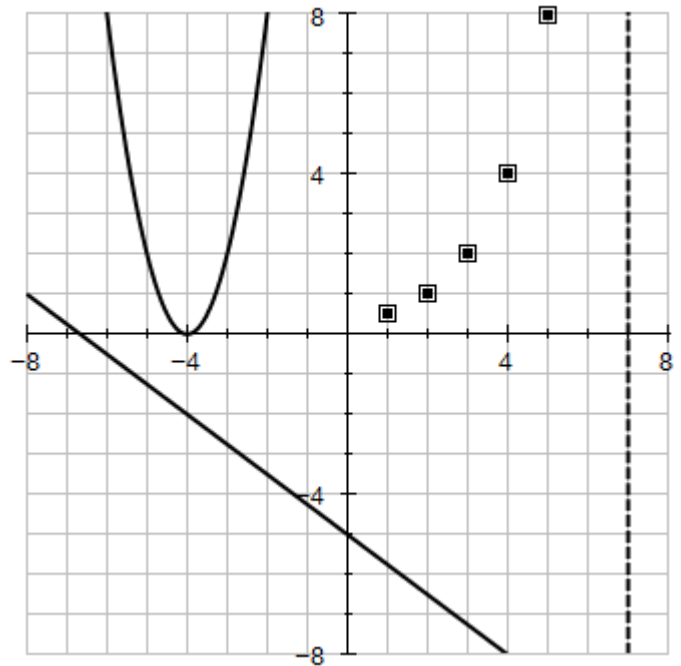


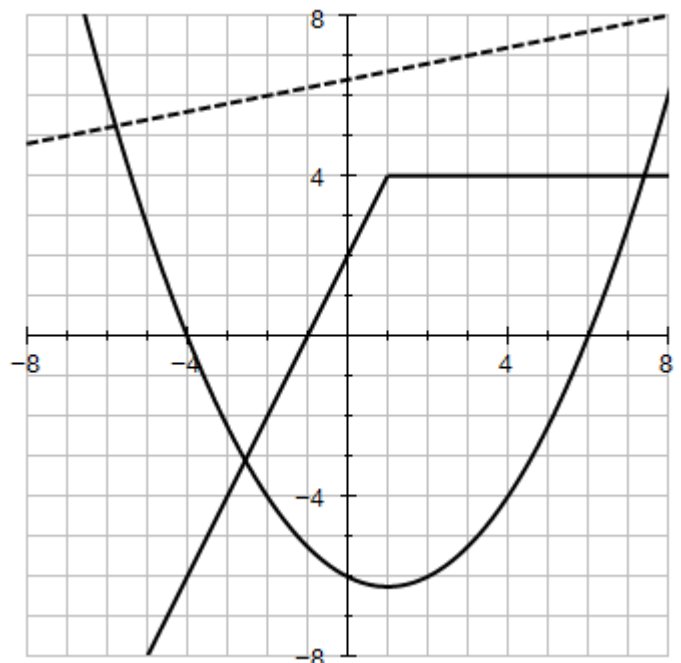
### Y11 Harder Graphs Practice #3

1. For the grid to the right:
  - a. What is the equation of the solid line?
  - b. Where will the solid line intersect the dotted line? *Give full reasons.*
  - c. What is the equation of the parabola?
  - d. What rule gives a plot for the dots?



2. For the grid to the left:
  - a. What is the y-intercept of the solid line?
  - b. What is the equation of the dotted curve?
  - c. What is the equation of the parabola?
  - d. What is the equation of the parabola if it moved by vector  $\begin{pmatrix} 2 \\ 5 \end{pmatrix}$ ?

3. 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 is the equation of the parabola?
  - d. What is the lowest point of the parabola?  
*Show your working.*



## Answers: Y11 Harder Graphs Practice #3

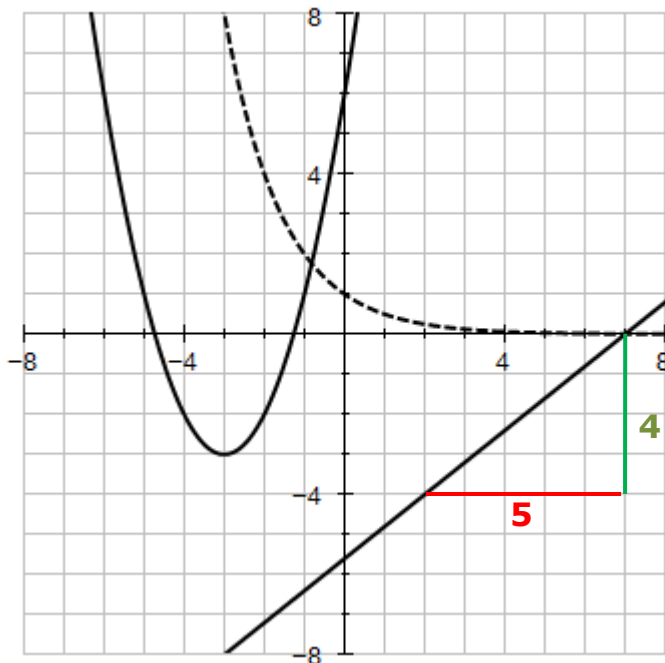
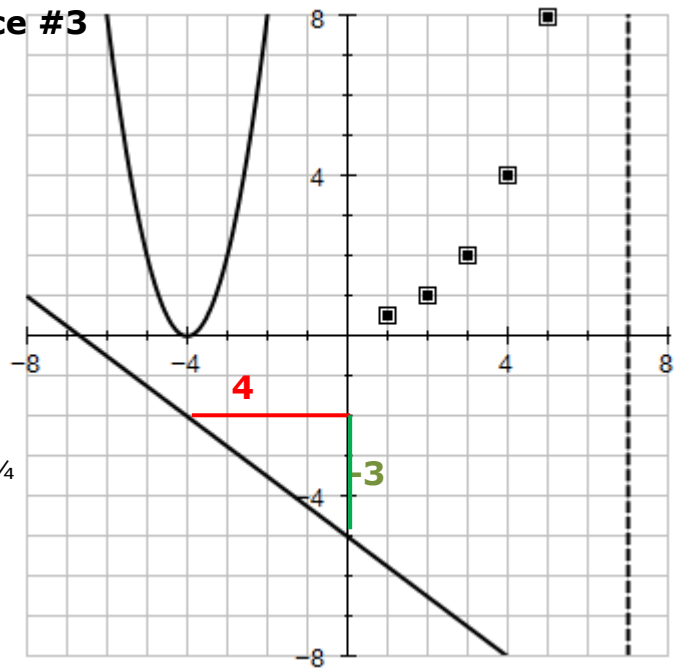
1.

a.  $y = \frac{-3}{4}x - 5$

b. dotted line is  $x = 7$ , so put that into  
 $y = \frac{-3}{4} \times 7 - 5$ , which gives **(7, -10.25)**

c.  $y = (x + 4)^2$

d. doubles for every one across, 0 would be  $\frac{1}{4}$   
 $y = 2^x$  graph, but moved two right  
 $t_n = 2^{n-2}$



3.

a.  $y = 2x + 2$  for  $x < 1$   
 $y = 5$  for  $x \geq 1$

b.  $y = \frac{1}{5}x + c$  goes through (3, 7)  
 $7 = \frac{1}{5} \times 3 + c \Rightarrow y = 0.2x + 6.4$

c.  $y = \frac{1}{4}(x + 4)(x - 6)$

d. Lowest point is  $x = 1$ , so put that into  
 formula:  $y = \frac{1}{4}(1 + 4)(1 - 6) = -6.25$

2.

a.  $y = \frac{4}{5}x + c$  goes through (7, 0)  
 $0 = \frac{4}{5} \times 7 + c \Rightarrow c$ , y-intercept, = **-5.6**

b.  $y = 0.5^x$  or  $y = 2^{-x}$

c.  $y = (x + 3)^2 - 3$

d.  $\begin{pmatrix} 2 \\ 5 \end{pmatrix}$  is two right and five up,  
 so -2 to x and +5 to y.

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

