

Textbook 265

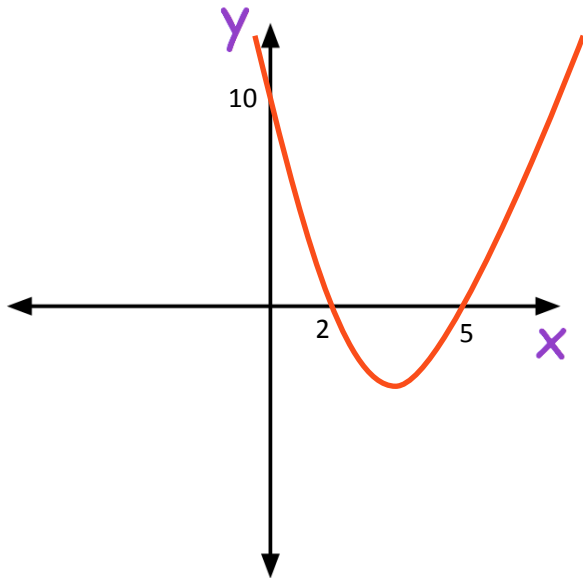
Answers

1a)  $y = 10$

b) It will cross at  $(0,10)$

c)  $x = 2$  and  $x = 5$

d) It will cross at  $(2,0)$  and  $(5,0)$

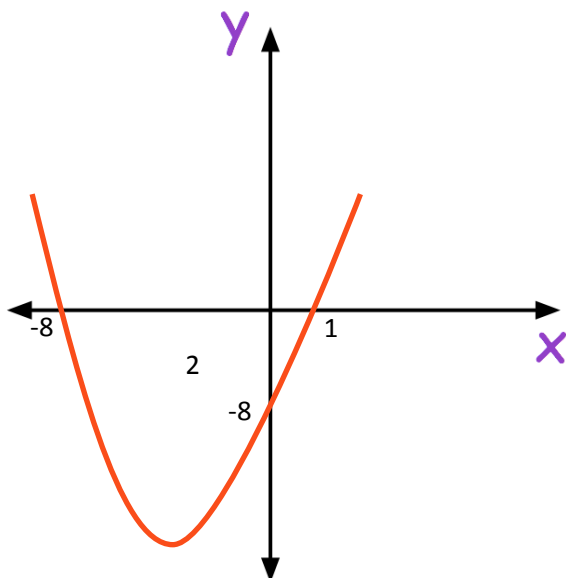


2a)  $y = -8$

b) It will cross at  $(0,-8)$

c)  $x = 1$  and  $x = -8$

d) It will cross at  $(1,0)$  and  $(-8,0)$

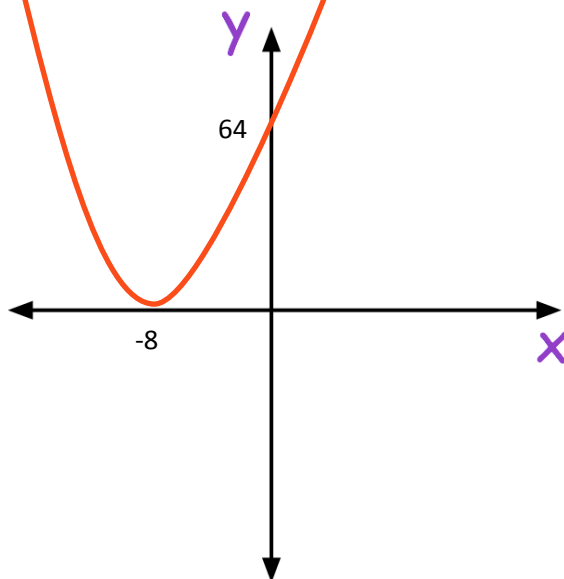


3a)  $y = 64$

b) It will cross at  $(0,64)$

c)  $x = -8$

d) It will touch the x axis at  $(-8,0)$



4a)  $y = 10$

b) It will cross at  $(0,10)$

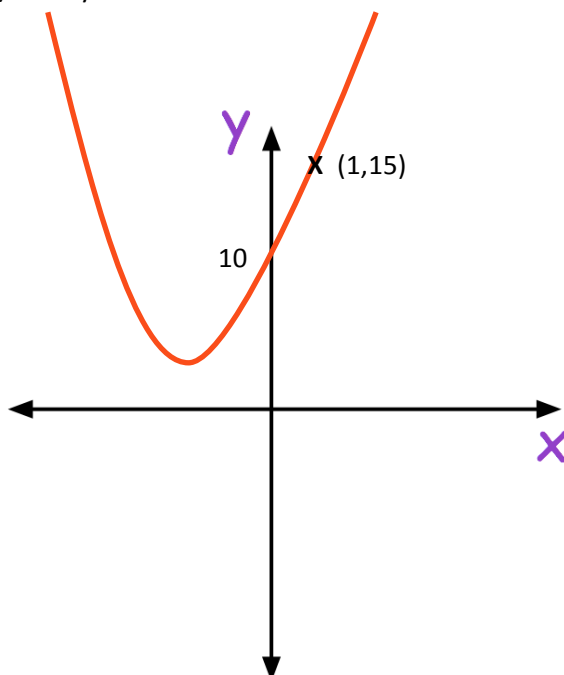
c) Using the quadratic formula  $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

with  $a = 1$ ,  $b = 4$ ,  $c = 10$  leaves  $4^2 - 4 \times 1 \times 10 = -24$  under the square root, which will not return a real answer, so there are no roots to the equation

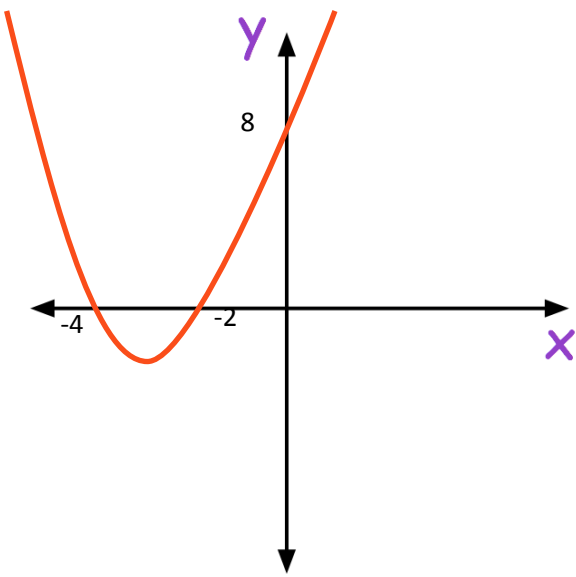
d) This means that  $x^2 + 4x + 10$  can never be zero, and therefore never crosses the x-axis.

e)  $y = 15$

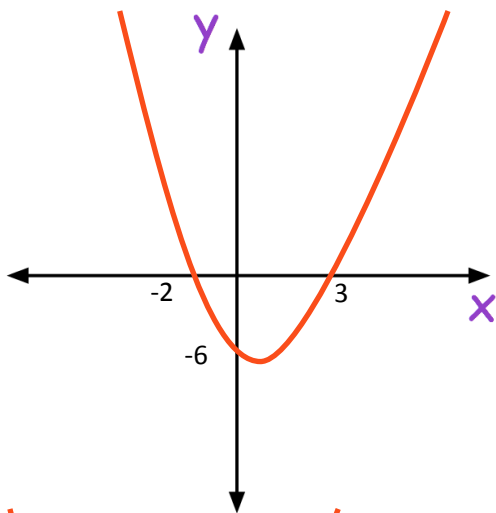
f)



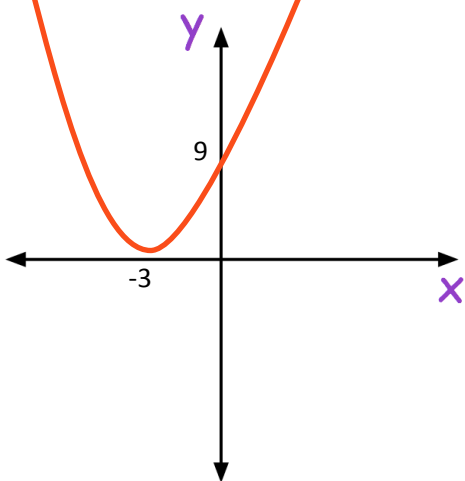
5a)



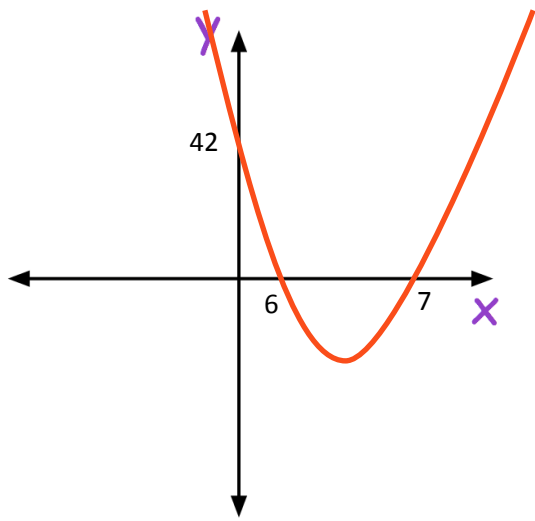
b)



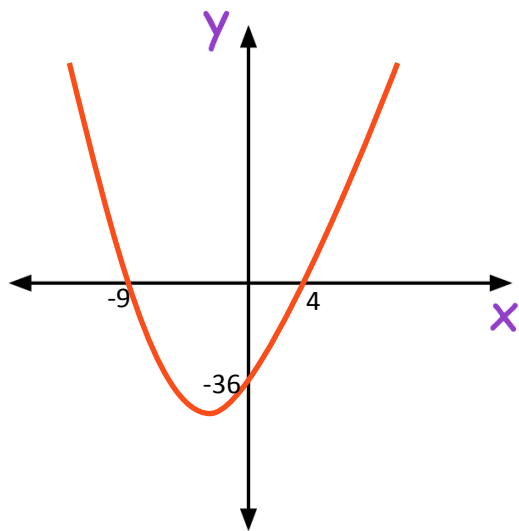
c)



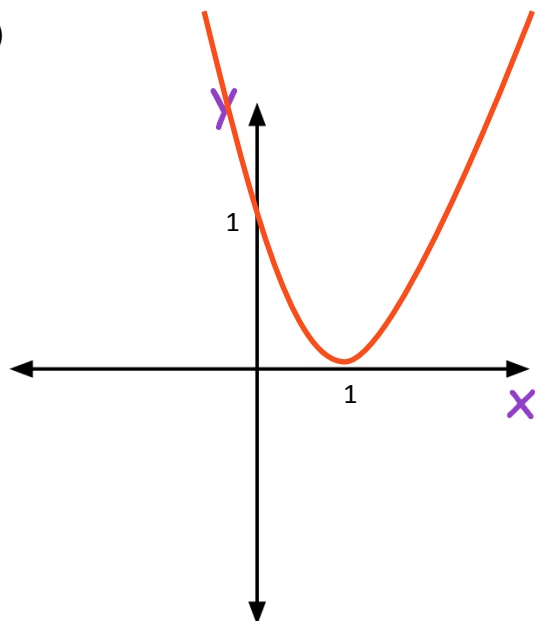
d)



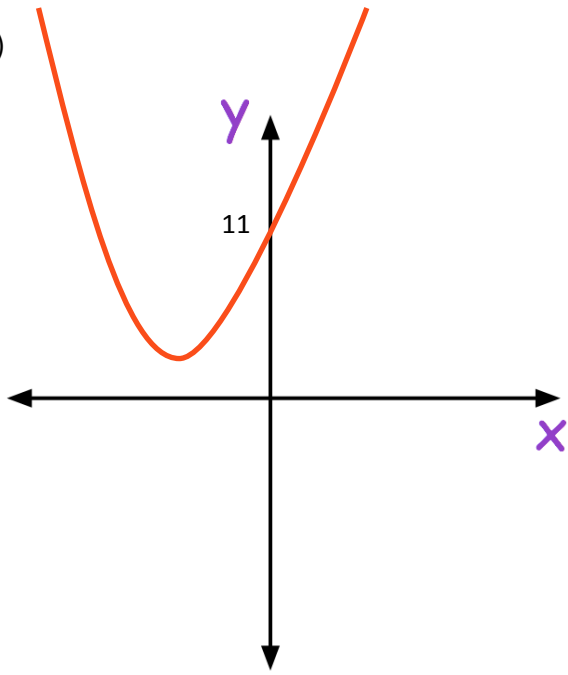
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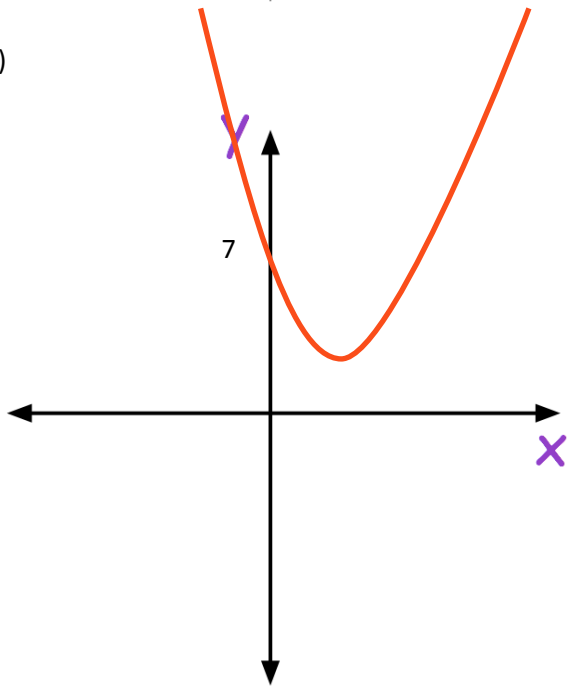
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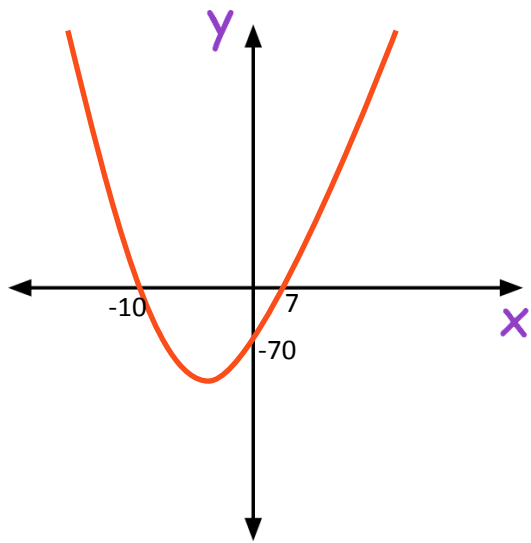
g)



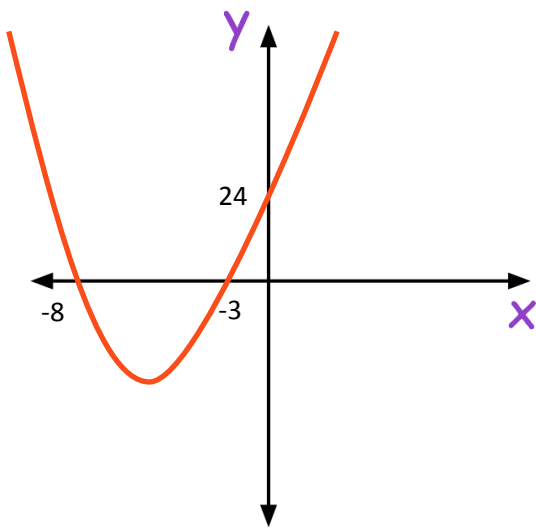
h)



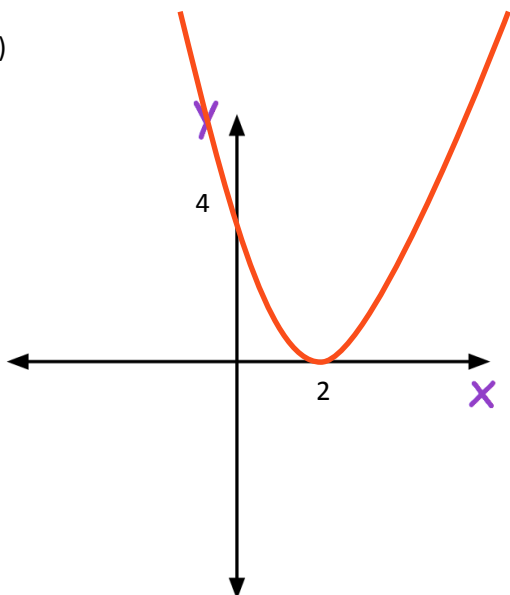
6a)



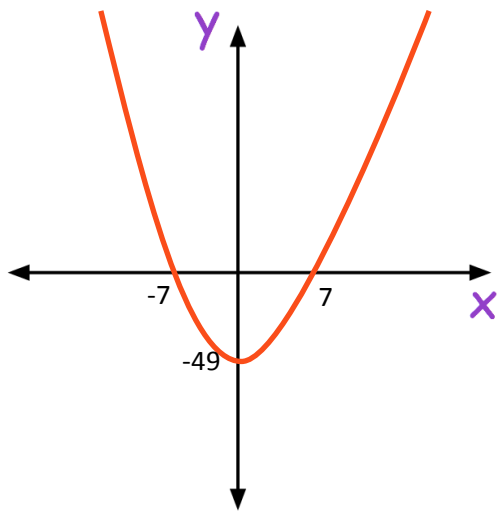
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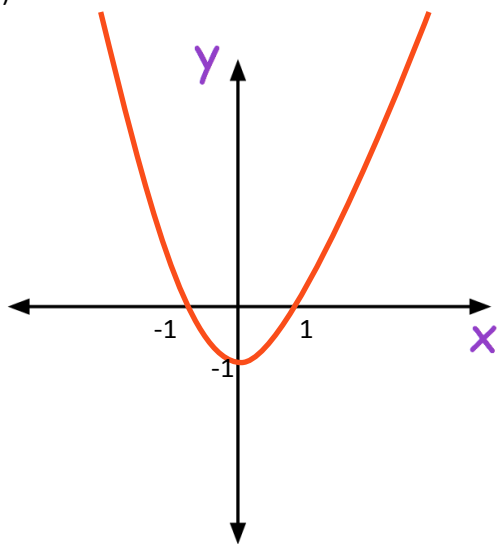
c)



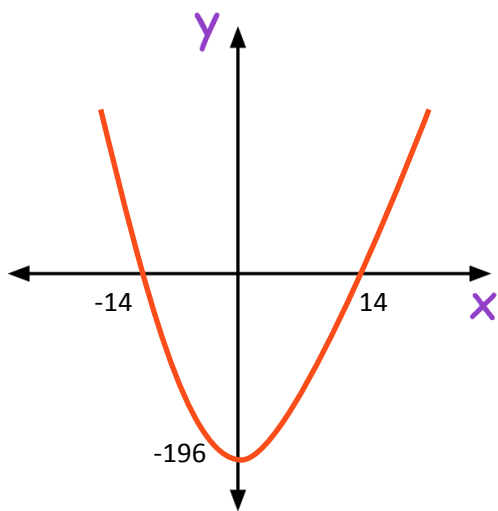
7a)



b)



c)



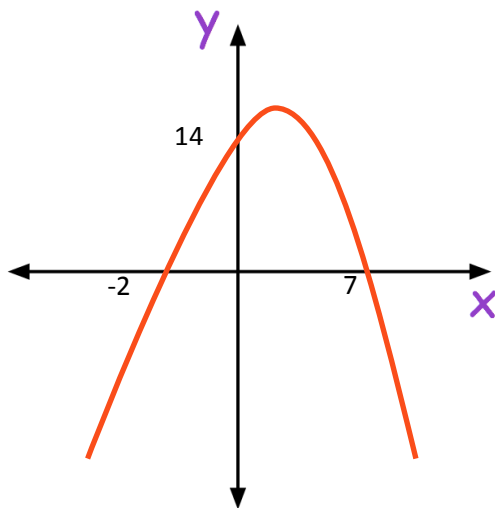
8a)  $y = 14$

b) It crosses at  $(0,14)$

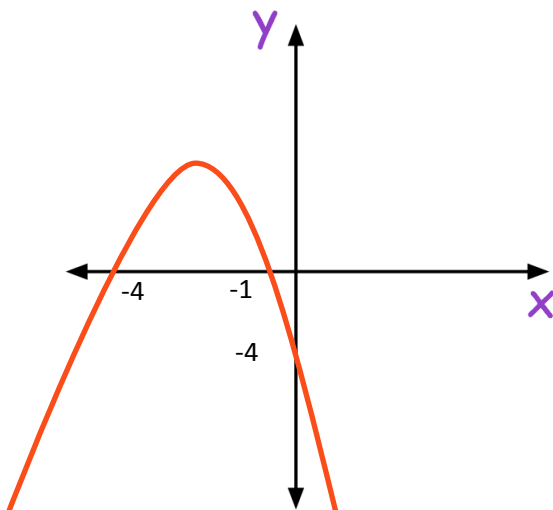
c)  $x = 7, x = -2$

d) It crosses at  $(7,0)$  and  $(-2,0)$

e)

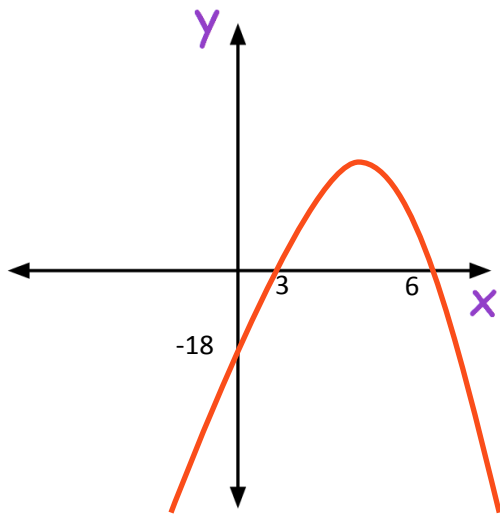


9a)

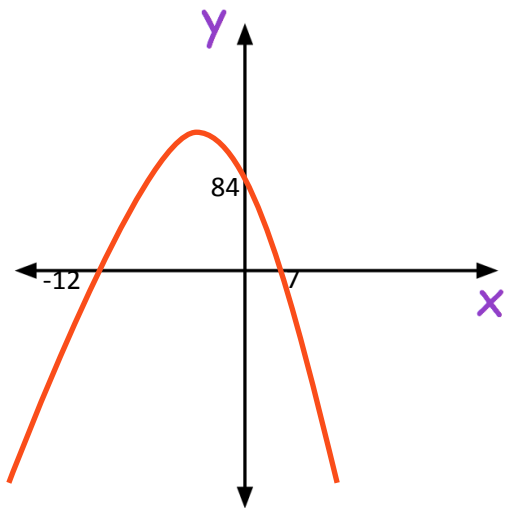




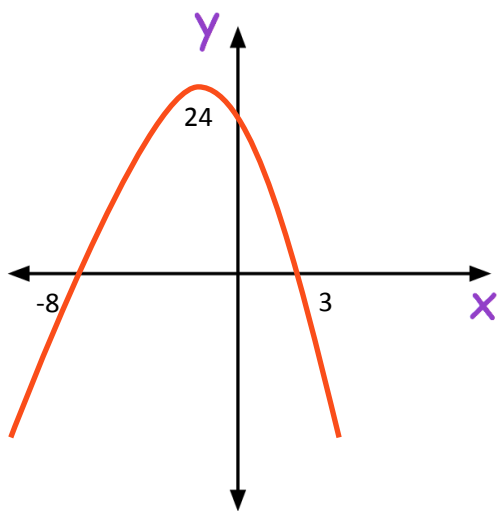
b)



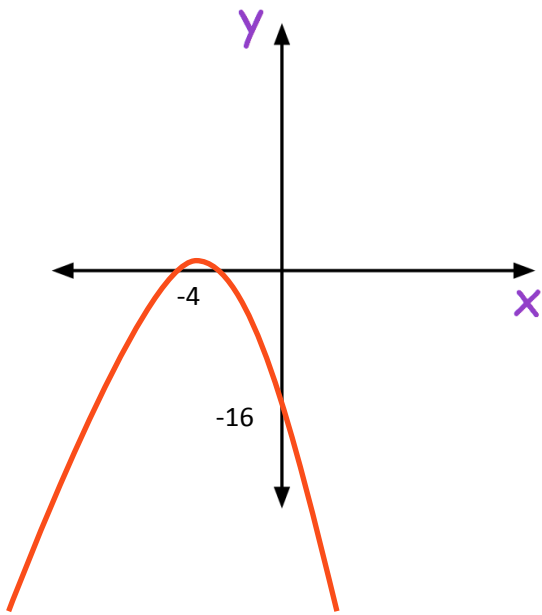
c)



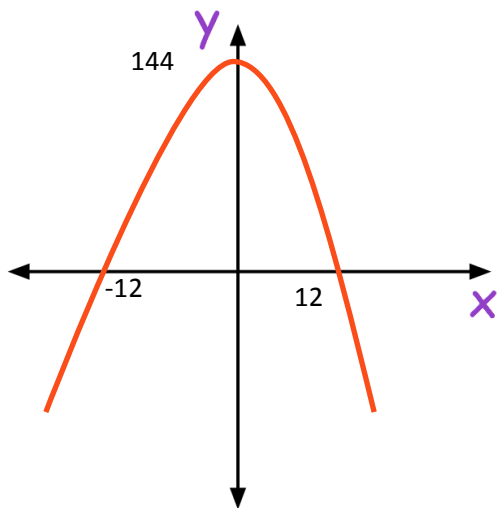
d)



e)



f)



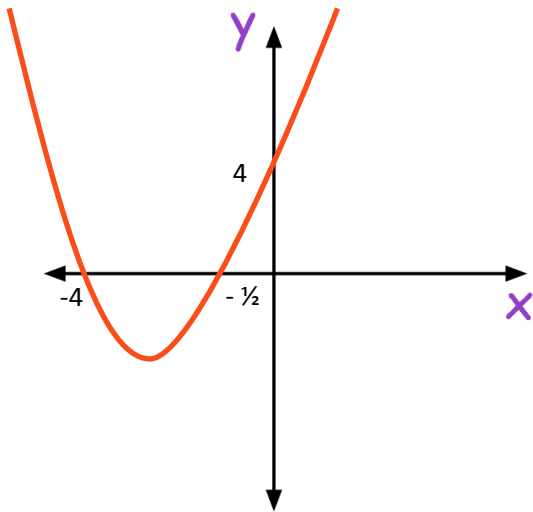
10a)  $y = 4$

b) It crosses at  $(0,4)$

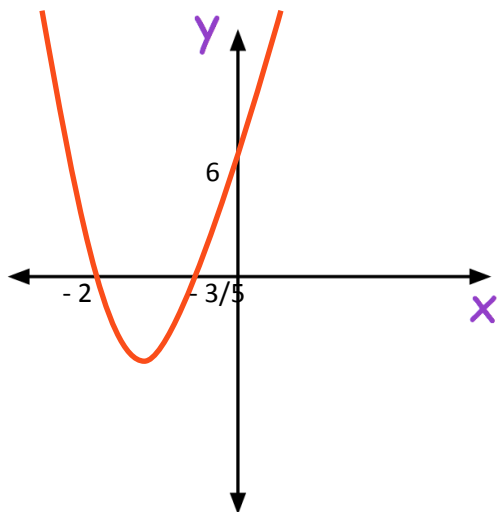
c)  $x = -\frac{1}{2}$ ,  $x = -4$

d) It crosses at  $(-\frac{1}{2}, 0)$  and  $(-4, 0)$

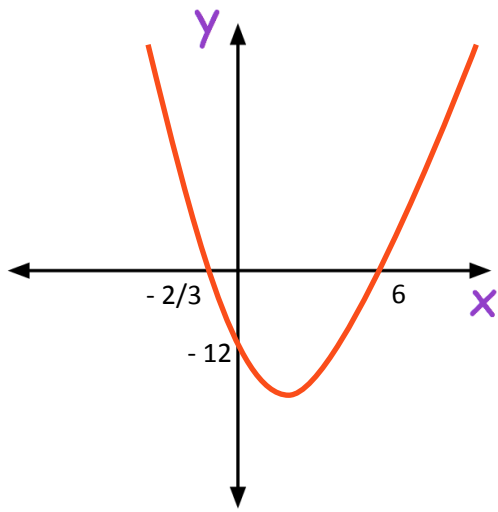
e)



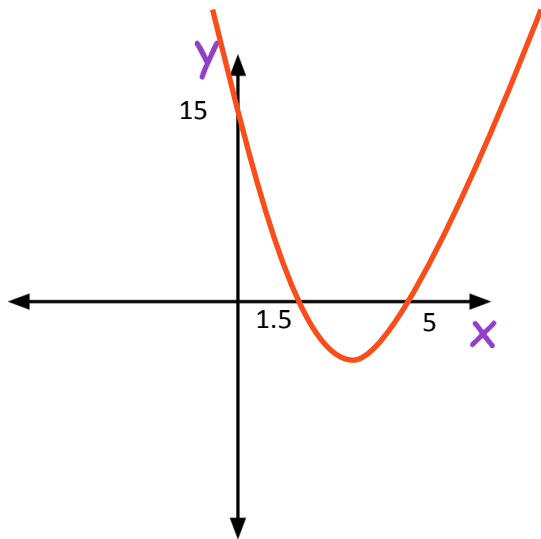
11a)



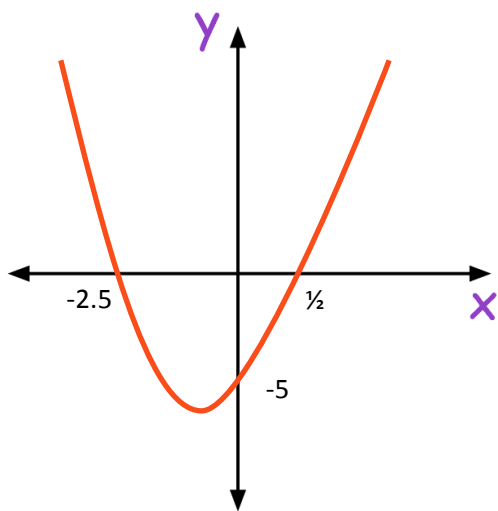
b)



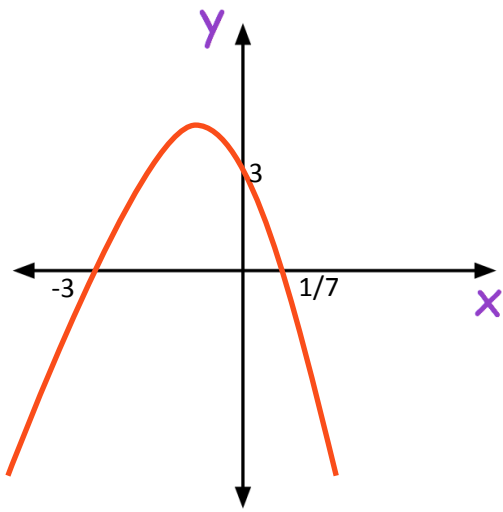
c)



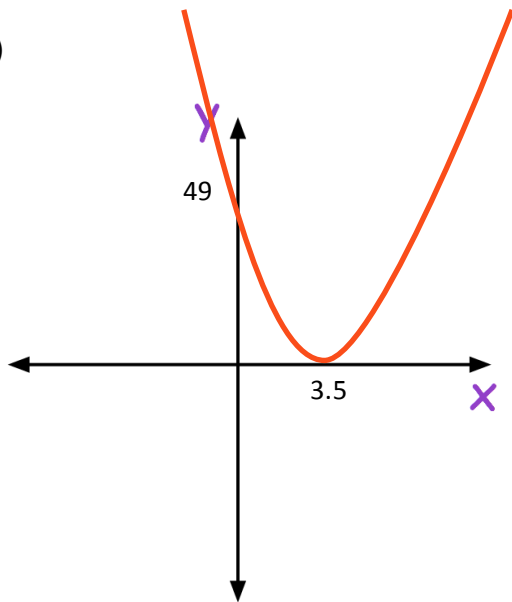
d)



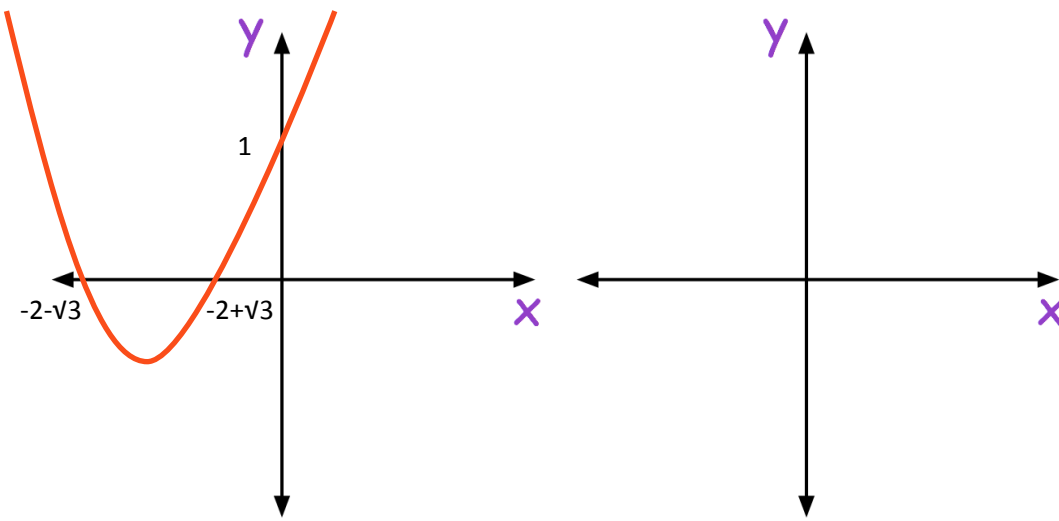
e)



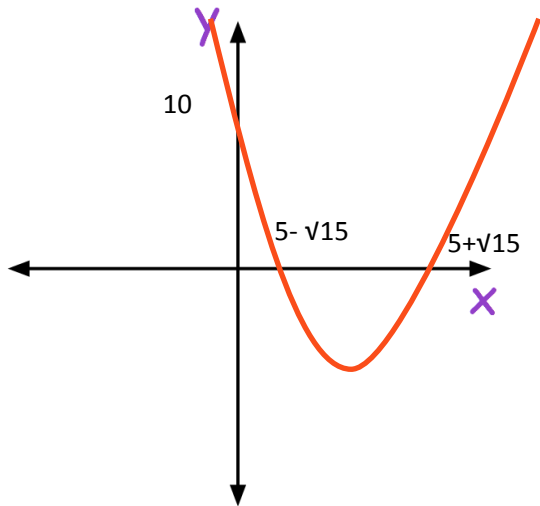
f)



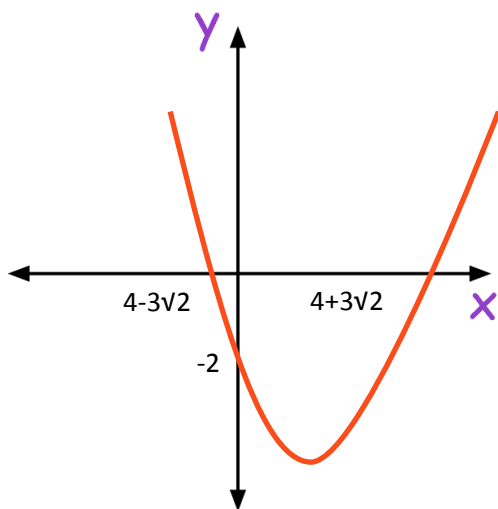
12a)



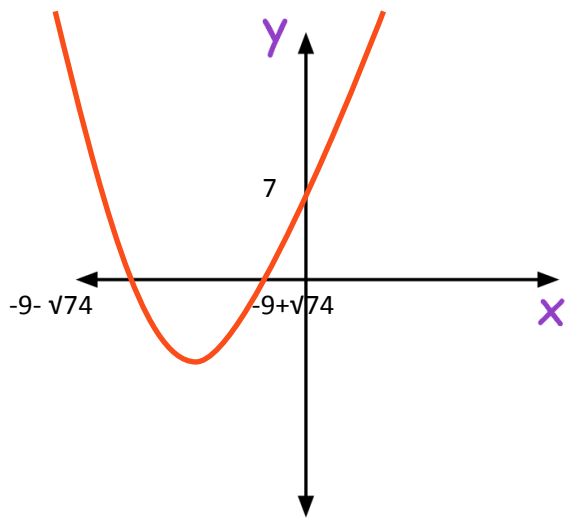
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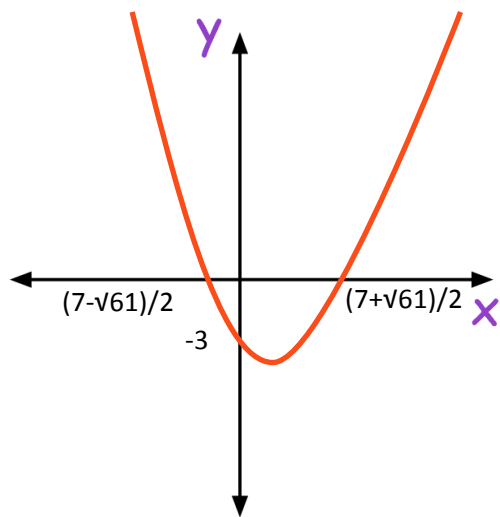
c)



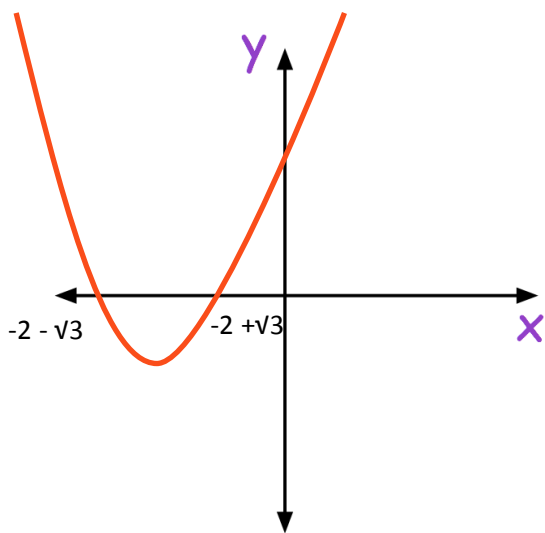
d)



e)



f)



Apply

1) The graph is upside down, and it should cross the y axis at -54

2a) The vertex of the graph should be to the right of the y axis.

b)  $a = 1, b = -2, c = 6$  meaning  $b^2 - 4ac = (-2)^2 - 4 \times 1 \times 6 = -20$

You can't use the square root of a negative number, so there are no roots, therefore the graph does not cross the x axis

3a)  $a = 17 \quad b = 60 \quad c = -5$