

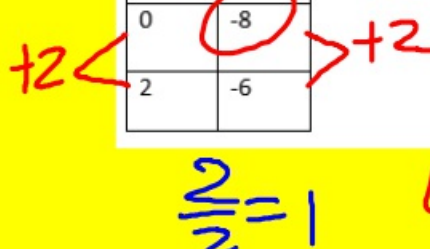
1. Factor completely: $27m^2 - 3$

$$3(9m^2 - 1)$$

$$3(3m+1)(3m-1)$$

2. Write an equation for the following table in slope-intercept form.

x	y
0	-8
2	-6



$$m = 1$$

$$b = -8$$

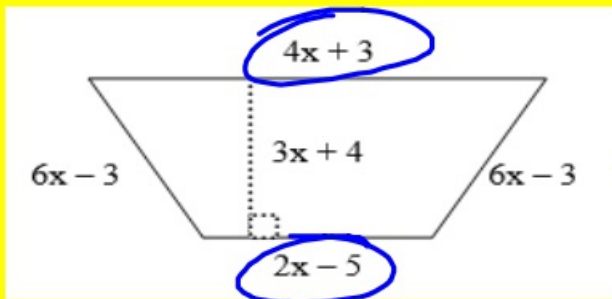
$$y = x - 8$$

$$y = mx + b$$

$$\frac{\Delta y}{\Delta x}$$

$$y - y_1 = m(x - x_1)$$

3. Find the perimeter and area of the figure:



$$P = 18x - 8$$

$$A = \frac{h(b_1 + b_2)}{2}$$

$$(3x+4)(6x-2)$$

$$18x^2 - 6x + 24x - 8$$

$$\frac{18x^2 + 18x - 8}{2}$$

$$A = 9x^2 + 9x - 4$$

REVIEW

Identify all you can
from the graph:

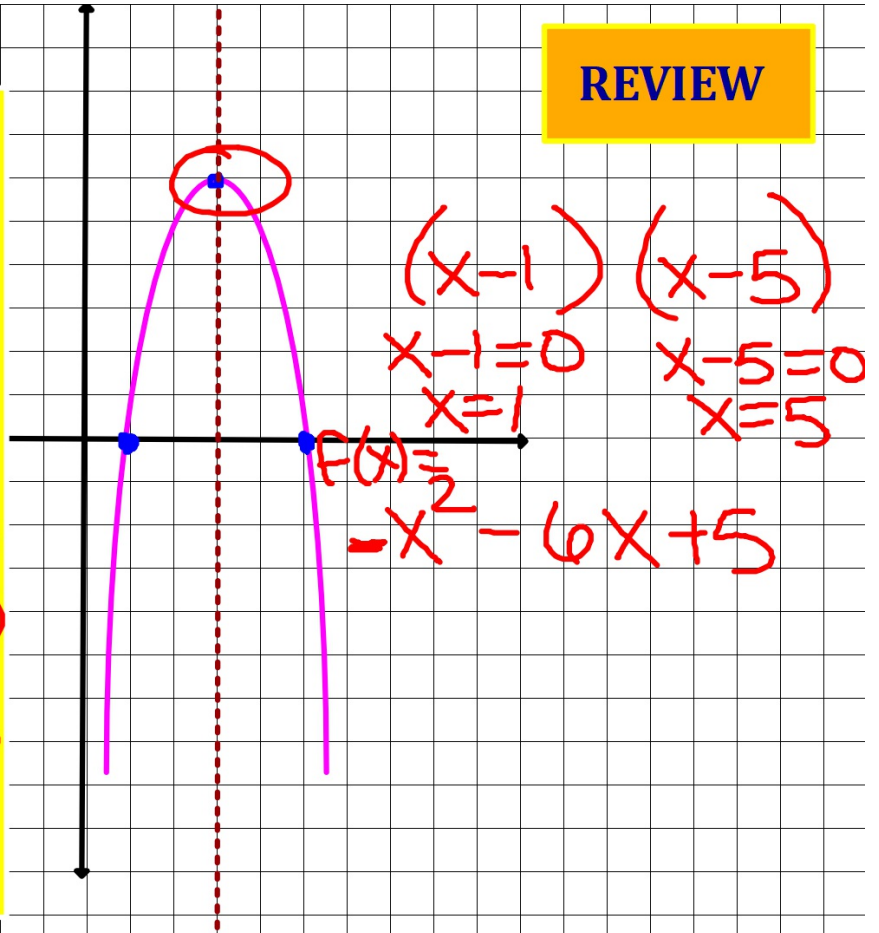
Maximum (3, 6)
(vertex)

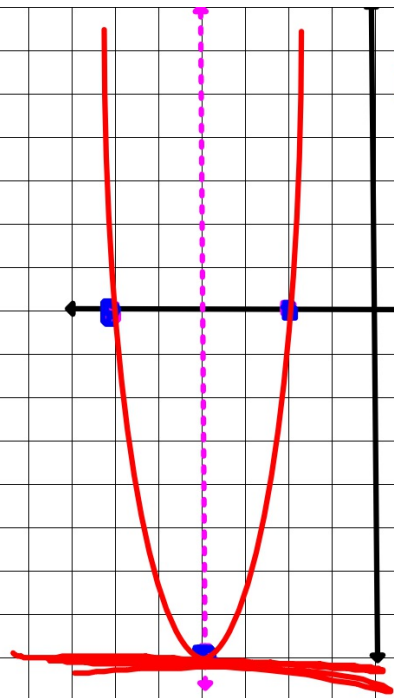
A.O.S. $x=3$

Roots $\{1, 5\}$

Domain All \mathbb{R} #'s

Range $y \leq 6$





$$f(x) = x^2 + 8x + 12$$

$$(x+6)$$

$$x+6=0$$
$$x=-6$$

$$(x+2)$$

$$x+2=0$$
$$x=-2$$

$$\text{A.O.S.} = -4$$

Minimum $(-4, -8)$
(vertex)

Roots $\{-6, -2\}$

Range $y \geq -8$

Products of Consecutive Numbers

1. The product of two positive consecutive integers is 56. Find the integers.

$$x = 1^{\text{st}} \#$$

$$x+1 = 2^{\text{nd}} \#$$

$$x(x+1) = 56$$

$$x^2 + x = 56$$

$$ac = \frac{-56}{8} = -7$$

$$x^2 + x - 56 = 0$$

$$(x^2 + 8x)(-7x - 56)$$

$$\textcircled{x}(x+8) \textcircled{-7}(x+8)$$

$$(x-7)(x+8)$$

$$x-7=0 \quad x+8=0$$

$$x=7$$

$$\cancel{x=-8}$$

7, 8

2. The product of two negative consecutive odd integers is 99. Find the integers.

$$x = 1^{\text{st}} \#$$

$$x+2 = 2^{\text{nd}} \#$$

$$x(x+2) = 99$$

$$x^2 + 2x - 99 = 0$$

$$ac = -99$$
$$\begin{array}{r} 11 \overline{) -99} \\ \underline{-99} \\ 0 \end{array}$$

$$\boxed{-11, -9}$$

$$(x^2 + 11x)(-9x - 99)$$
$$\textcircled{x}(x+11)\textcircled{-9}(x+11)$$

$$(x-9)(x+11)$$

$$x-9=0 \quad x+11=0$$

$$\cancel{x=9}$$

$$x = -11$$

3. Find two consecutive positive even integers such that the square of the smaller is 10 more than the larger.

x
 $x+2$

$$x^2 = 10 + (x+2)$$

$$x^2 = x + 12$$

$$\begin{array}{r} -12 \\ 3 \overline{)4} \end{array}$$

4, 6

$$x^2 - x - 12 = 0$$

$$(x^2 + 3x)(-4x - 12)$$

$$\textcircled{x}(x+3) = \textcircled{-4}(x+3)$$

$$(x-4)(x+3)$$

$$x-4=0 \quad x+3=0$$

$$x=4$$

$$\cancel{x=-3}$$

4. The sum of a number and its square is 20.
Find the number(s).

$$\begin{aligned}x + x^2 &= 20 \\x^2 + x - 20 &= 0 \\(x^2 + 5x)(-4x - 20) \\x(x+5) - 4(x+5) \\(x-4)(x+5) \\x-4=0 \quad x+5=0 \\x=4 \quad x=-5\end{aligned}$$

4, 16
-5, 25

You Try:

1. The product of two negative consecutive integers is 420. Find the integers.

x
 $x+1$

$$x(x+1) = 420$$

$$x^2 + x - 420 = 0$$

$$\begin{array}{r} -420 \\ \hline -20 \mid 21 \end{array}$$

$-21, -20$ $(x^2 - 20x)(+21x - 420)$

$$\textcircled{x}(x-20)\textcircled{21}(x-20)$$

$$(x+21)(x-20)$$

$$x+21=0 \quad x-20=0$$

$$x=-21$$

$$\cancel{x=20}$$

2. The product of two positive consecutive odd integers is 195. Find the integers.

x
 $x+2$

$$x(x+2) = 195$$
$$x^2 + 2x - 195 = 0$$

3. The product of two positive consecutive even integers is 6 more than three times their sum. Find the integers.

**4. The sum of a number and its square is 72.
Find the number(s).**