Solve each equation by factoring.

1) $x^2 - 9x + 18 = 0$

$(x-6)(x-3) = 0$

	x	-6
x	x^2	$-6x$
-3	$-3x$	18

$x = 6, 3$

2) $x^2 + 5x + 4 = 0$

$0 = (x+4)(x+1)$

	x	$+4$
x	x^2	$4x$
$+1$	$1x$	4

$x = -1, -4$

3) $n^2 - 64 = 0$

$n^2 = 64$

$n = \pm 8$

$(n \pm 8) = 0$

$n = \pm 8$

4) $b^2 + 5b = 0$

$b(b+5) = 0$

$b = 0, -5$

5) $35n^2 + 22n + 3 = 0$

	$5n$	$+1$
$7n$	$35n^2$	$7n$
$+3$	$15n$	3

$(7n+3)(5n+1) = 0$

$n = \frac{-3}{7}, \frac{-1}{5}$

6) $15b^2 + 4b - 4 = 0$

$b = \frac{2}{5}, \frac{-2}{3}$

	$5b$	-2
$3b$	$15b^2$	$-6b$
$+2$	$10b$	-4

7) $7p^2 - 38p - 24 = 0$

	p	-6
$7p$	$7p^2$	$-42p$
$+4$	$4p$	-24

$p = 6, \frac{-4}{7}$

8) $3x^2 + 14x - 49 = 0$

	$3x$	$+7$
$3x$	$3x^2$	$21x$
-7	$-7x$	-49

$(3x-7)(x+7)$

$x = \frac{7}{3}, x = -7$

9) $3k^2 - 18k - 21 = 0$

$3(k^2-6k-7)=0$

	k	-7
k	k^2	$-7k$
$+1$	$1k$	-6

$3(k-7)(k+1)=0$

$k=7 \quad k=-1$

10) $6k^2 - 42k + 72 = 0$

$6(k^2-7k+12)$

	k	-3
k	k^2	$-3k$
-4	$-4k$	12

$6(k-3)(k-4)=0$

$k-3=0 \quad k-4=0$

$k=3$

$k=4$

1. A company wants to maximize its profit. The following function models the company's profit as a function of the number of components it manufactures:

$P(c) = -0.075c^2 + 240c + 27{,}500$

a) How many components should it manufacture to realize this maximum profit?

b) Find the company's maximum profit.

$P = \$219{,}500$

$c = \frac{-b}{2a} = \frac{-240}{2(-0.075)} = 1600$

2. Find the y-intercept for each parabola.

a. $y = -4x^2 + 6x$

$y = 0$

b. $y = 9x^2 - 12 + 3x$

$y = 9x^2 + 3x - 12$

$y = -12$

3. Find the equation for the LOS of each parabola.

a. $y = 7x^2 + 8x - 11$

$x = \frac{-8}{2(7)} = \frac{4}{7}$

b. $y = -2x^2 + 24$

$x = 0$

4. Find the coordinates of the Vertex for each parabola.

a. $y = 3x^2 + 36x - 19$

$(-6, -127)$

$x = \frac{-36}{2(3)} = -6$

b. $y = -5x^2 + 18$

$(0, 18)$

5. Does each parabola have a maximum or a minimum? Explain your answer.

a. $y = 0.0015x^2 - 87x - 101$

+ U min

b. $y = -126x + 508x^2 + 93$

min

6. Find all EXACT real solutions for each quadratic using square roots.

a. $313 - 5x^2 = 153$

$-313 \quad -313$

$-5x^2 = -160$

$x^2 = 32$

$= \pm 4\sqrt{2}$

b. $2(x-1)^2 + 7 = 57$

$-7 \quad -7$

$2(x-1)^2 = 50$

$(x-1)^2 = 25$

$x - 1 = \pm 5$

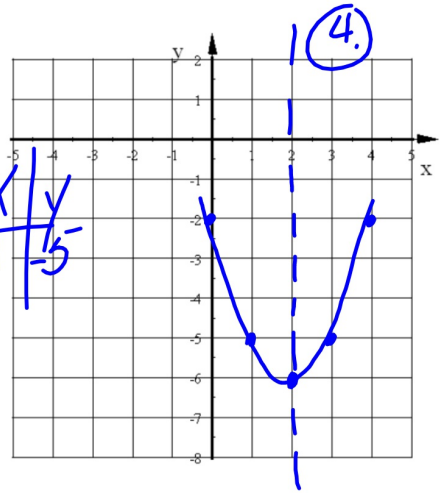
$x = 6, -4$

7. Graph this parabola using at least 5 points.

$y = x^2 - 4x - 2$

1. $x = \frac{4}{2(1)} = 2$
2. $(2, -6)$
3. $y = -2$
4. 1
5.

x	y
1	-5

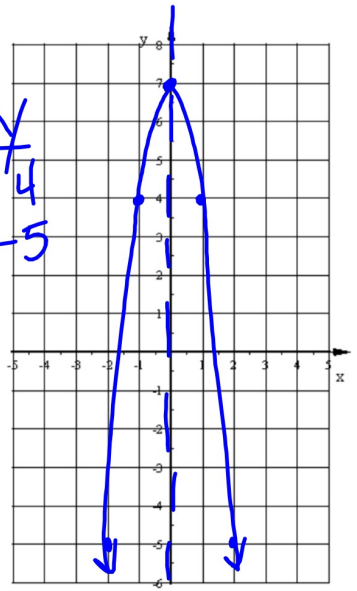


8. Graph this parabola using at least 5 points.

$y = -3x^2 + 7$

1. $x = 0$
2. $(0, 7)$
3. $y = 7$
4.
5.

x	y
1	4
2	-5



IXL #16 - BB.7 & BB.10 due Friday at 4pm!