

Quiz 6.1 – Show all steps in your solving!

1) Graph a quadratic given an equation and the use of a table.

$$y = x^2 - 2x - 8$$

[Use your graphing calculator to complete table]

x	y
-2	0
-3	-7
-1	-5
0	-8
1	-9
2	-8
3	-5
4	0
5	7

$$0 = x^2 - 2x - 8$$

$$0 = (x-4)(x+2)$$

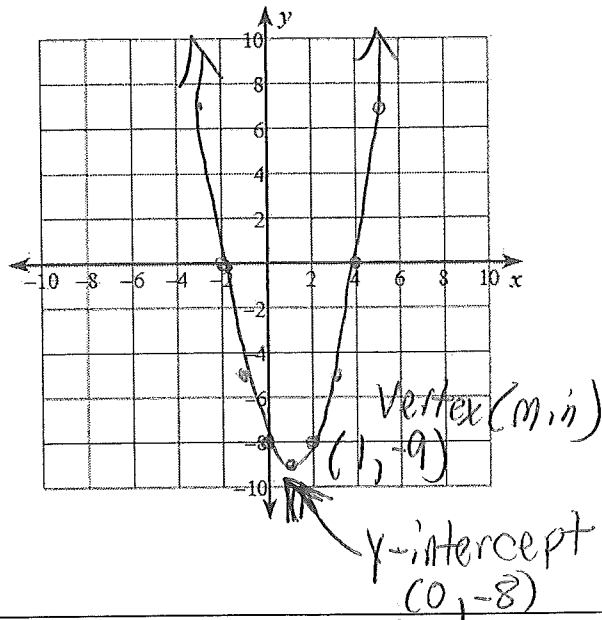
$$x = 4, -2$$

$$y = (-3)^2 - 2(-3) - 8$$

$$y = 9 + 6 - 8$$

$$y = (-1)^2 - 2(-1) - 8$$

$$y = 1 + 2 - 8$$



2) Expand the quadratic expressions.

a) $x(2x+4) = 2x^2 + 4x$

x	$2x^2$	$4x$
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$$a(x-r_1)(x-r_2) \rightarrow ax^2 + bx + c$$

b) $-3x(-4x+5) = -3x(-4x) - 3x(5)$

$$= 12x^2 - 15x$$

c) $(x+3)(x+8)$

x^2	$11x$	24
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x	3
x^2	$3x$
$8x$	24

d) $(x+5)(x-9)$

x^2	$-4x$	-45
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x	5
x^2	$5x$
-9	-45

e) $(x-8)^2 = (x-8)(x-8)$

x	-8
x^2	$-8x$
-8	64

x	3
x^2	$3x$
$8x$	24

$$x^2 - 16x + 64$$

f) $2(2x-4)(x-6)$

$2x$	-4
$2x^2$	$-4x$
$-12x$	24

$$4x^2 - 8x - 24x + 48 = 4x^2 - 32x + 48$$

3) Factor the quadratic expressions.

$$ax^2 + bx + c \rightarrow a(x-r_1)(x-r_2)$$

a) $x^2 + 13x + 36$

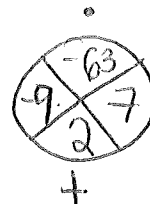


$$(x+4)(x+9)$$

b) $\frac{3x^2 + 6x}{3x}$

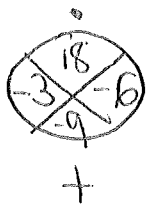
Common factor $3x$
 $3x(x+2)$

c) $x^2 - 2x - 63$



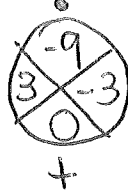
$$(x-9)(x+7)$$

d) $x^2 - 9x + 18$



$$(x-3)(x-6)$$

e) $x^2 - 9 = x^2 + 0x - 9$



$$= (x-3)(x+3)$$

4) Solve the quadratic equations. SHOW ALL WORK!

a) $x^2 = 49$

$$x = 7, -7$$

$$(7)^2 = 49$$

$$(-7)^2 = 49$$

b) $x^2 - 5 = 11$

$$+5 +5$$

$$\sqrt{x^2} = \sqrt{16}$$

$$x = 4, -4$$

c) $(x-8)(x+3) = 0$

$$\begin{array}{l|l} x-8=0 & x+3=0 \\ +8 +8 & -3 -3 \end{array}$$

$$x = 8$$

$$x = -3$$

d) $x^2 - 9x + 14 = 0$

$$(x-2)(x-7) = 0$$



$$\begin{array}{l|l} x-2=0 & x-7=0 \\ +2 +2 & +7 +7 \end{array}$$

$$x = 2$$

$$x = 7$$

Quiz 6.1 – Show all steps in your solving!

1) Graph a quadratic given an equation and the use of a table.

$y = x^2 + 2x - 8$ [Use your graphing calculator to complete table]

x	y
-2	-8
-1	-9
0	-8
1	-5
2	0
-3	-5
-4	0
-5	7
3	7

$y = (-2)^2 + 2(-2) - 8$

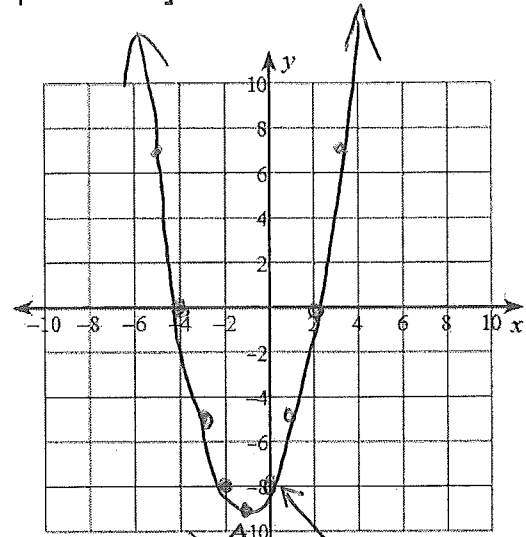
$y = 4 - 4 - 8$

$y = (-1)^2 + 2(-1) - 8$

$y = 1 - 2 - 8$

$0 = (x + 4)(x - 2)$

$(-4, 0) (2, 0)$



Vertex (min) $(-1, -9)$
 y-intercept $(0, -8)$

2) Expand the quadratic expressions.

$a(x - r_1)(x - r_2) \rightarrow ax^2 + bx + c$

a) $x(3x + 6) = 3x^2 + 6x$

	$3x$	6
x	$3x^2$	$6x$

b) $-2x(-5x + 4) = -2x(-5x) - 2x(4)$

$= 10x^2 - 8x$

c) $(x + 4)(x + 5) = x^2 + 9x + 20$

	x	4
x	x^2	$4x$
5	$5x$	20

d) $(x + 2)(x - 7) = x^2 - 5x - 14$

	x	2
x	x^2	$2x$
-7	$-7x$	-14

e) $(x - 9)^2$

	x	-9
x	x^2	$-9x$
-9	$-9x$	81

$x^2 - 18x + 81$

f) $2(3x - 3)(x - 6)$

$2(3x^2 - 3x - 18x + 18)$

$2(3x^2 - 21x + 18)$

$6x^2 - 42x + 36$

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

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3) Factor the quadratic expressions. $ax^2 + bx + c \rightarrow a(x-r_1)(x-r_2)$

a) $x^2 + 14x + 48$



$(x+6)(x+8)$

b) $4x^2 + 12x$

Common Factor $4x$

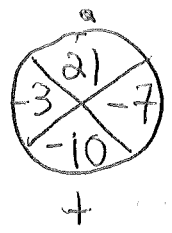
$4x(x+3)$

c) $x^2 - 2x - 35$



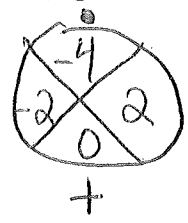
$(x-7)(x+5)$

d) $x^2 - 10x + 21$



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

e) $x^2 - 4 + 0x = x^2 + 0x - 4$



$(x-2)(x+2)$

4) Solve the quadratic equations. SHOW ALL WORK!

a) $x^2 = 36$

$x = 6, -6$

$6^2 = 36$

$(-6)^2 = 36$

b) $x^2 - 14 = 11$

$+14 +14$
 $\sqrt{x^2 = 25}$

$x = 5, -5$

c) $(x+8)(x-5) = 0$

$x+8=0$	$x-5=0$
$-8-8$	$+5+5$

$x = -8$ $x = 5$

d) $x^2 - 11x + 18 = 0$

$(x-2)(x-9) = 0$

$x-2=0$	$x-9=0$
$+2+2$	$+9+9$

$x = 2$ $x = 9$

