

Math 2 Module 4 Test Review

Name: Key Period: _____

1. What is the general form for standard form? $y = ax^2 + bx + c$

2. What is the general form for factored form? $y = a(x-p)(x-q)$

3. What is the general form for vertex form? $y = a(x-h)^2 + k$

4. Which form (standard, factored, or vertex) can you most efficiently find the vertex? Why? Or How do you find it using that form?
Vertex Form - It is (h, k)

5. Which form (standard, factored, or vertex) can you most efficiently find the axis of symmetry? Why? Or How do you find it using that form?
Vertex form - it is h

6. Which form (standard, factored, or vertex) can you most efficiently find the y-intercept? Why? Or How do you find it using that form?
Standard form - it is (0, c)

7. Which form (standard, factored, or vertex) can you most efficiently find the x-intercept(s)? Why? Or How do you find it using that form?
Factored Form - they are p and q

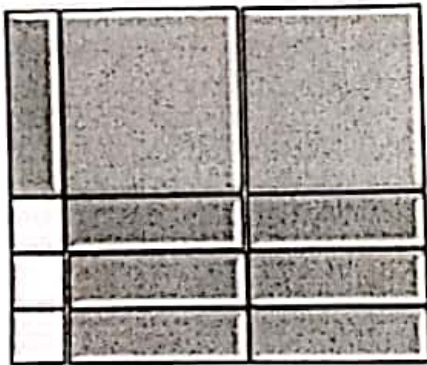
8. How do you determine if a quadratic has a maximum or a minimum from:
a. A table of values? a is positive - minimum a is negative - max
b. A graph? opens up or down
c. An equation? a is positive or negative

9. Create a quadratic equation based off the given information:
a. Opens down and vertex translated left and up: $y = -2(x+3)^2 + 2$
b. Opens up, wider than $y = x^2$, and vertex at (-3, -5): $y = \frac{1}{2}(x+3)^2 - 5$
c. Opens down, narrower than $y = x^2$: $y = -2x^2$
d. Vertex translated right and down and wider than $y = x^2$: $y = \frac{1}{2}(x-1)^2 - 2$
e. Opens up and narrower than $y = x^2$ and vertex at (6, -2): $y = 3(x-6)^2 - 2$

Example Answers!

11. Write the standard and factored forms for the following diagrams:

10. a.



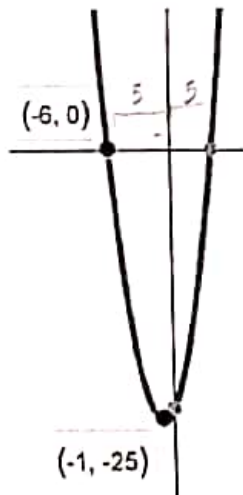
Standard Form: $2x^2 + 7x + 3$

Factored Form: $(2x+1)(x+3)$

12. Given the vertex and one x-intercept find the missing x-int:

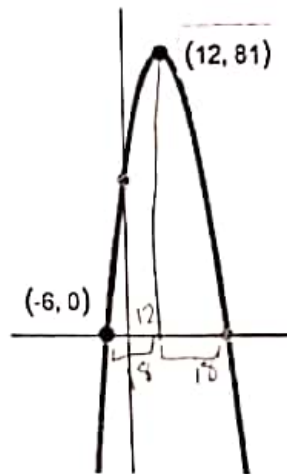
11.

a.



x-int: $(4, 0)$

b.



x-int: $(30, 0)$

12. Factor:

a. $x^2 - 23x - 24 = (x-24)(x+1)$

e. $x^2 - 11x + 24 = (x-8)(x-3)$

b. $6x^2 + 7x + 2 = (2x+1)(3x+2)$

f. $4x^2 + 9x + 2 = (x+2)(4x+1)$

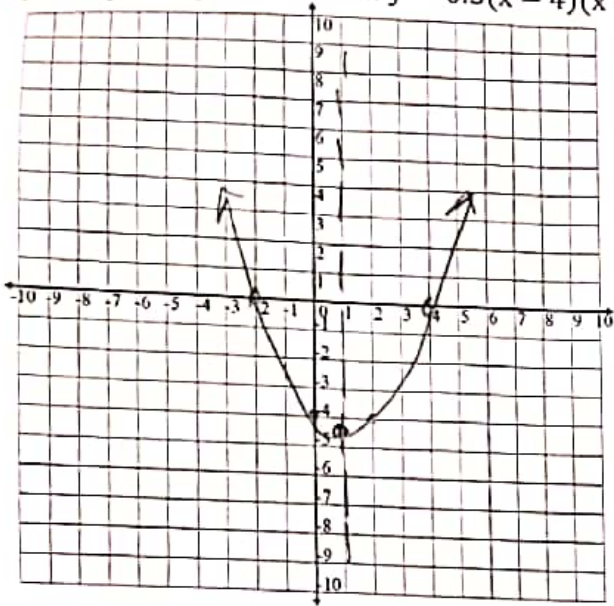
c. $x^2 - 2x - 24 = (x-6)(x+4)$

g. $x^2 + 25x + 24 = (x+24)(x+1)$

d. $x^2 - 14x + 24 = (x-2)(x-12)$

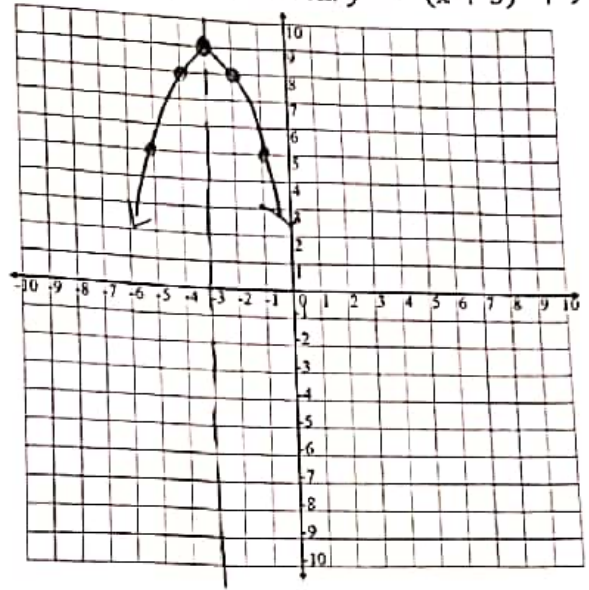
h. $x^2 + 14x + 24 = (x+12)(x+2)$

13. Graph the given function: $y = 0.5(x-4)(x+2)$



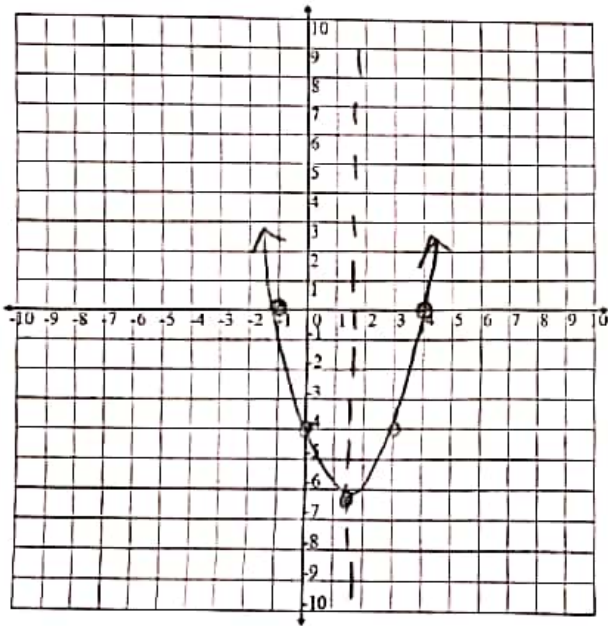
$$\frac{1}{2}(1-4)(1+2) = \frac{1}{2}(-9)$$

14. Graph the given function: $y = -(x+3)^2 + 9$



15. Graph the given function: $y = x^2 - 3x - 4$

$$(x-4)(x+1)$$

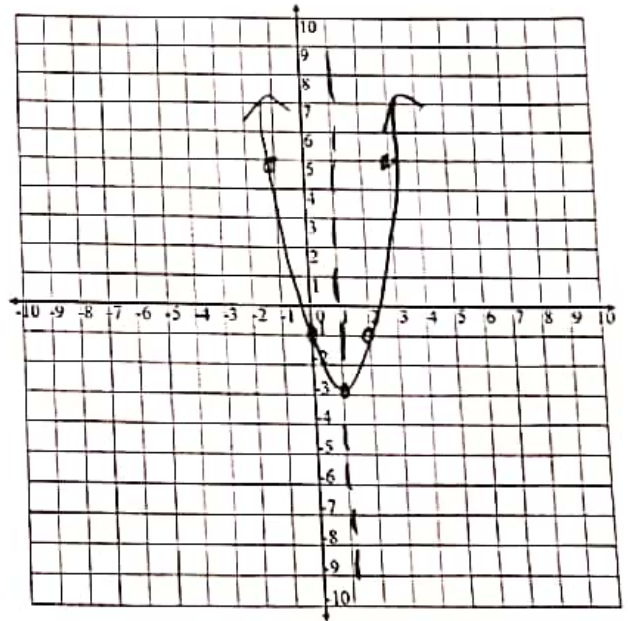


$$\frac{4+(-1)}{2} = \frac{3}{2}$$

$$1.5^2 - 3(1.5) - 4 = -6.25$$

16. Graph the given function: $y = 2(x-1)^2 - 3$

$$1, -3$$



17. Complete the Square and write it in vertex form:

a. $x^2 - 8x + \boxed{16} = (x-4)^2$

b. $x^2 + 4x + \boxed{4} = (x+2)^2$

e. $x^2 - 4x + \boxed{4} = (x-2)^2$

f. $x^2 + 6x + \boxed{9} = (x+3)^2$

g. $x^2 + 12x + \boxed{36} = (x+6)^2$

18. Given: the graph to the right Find:

a. Direction of opening: UD

b. Wider-Narrower-Same: _____

c. y-intercept: (0,6)

d. x-intercepts: (-1,0)(3,0)

e. Axis of Symmetry: 1

h. Vertex: (1,8)

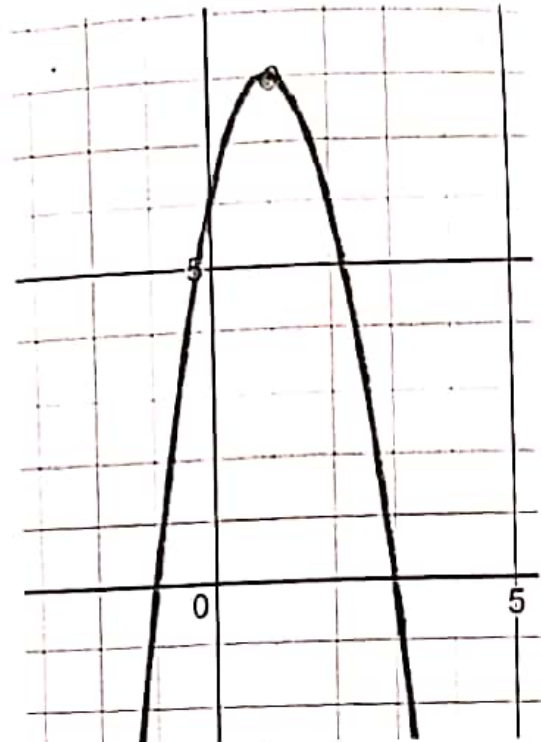
i. Max/Min: max

j. Vertex Form: $y = -2(x-1)+8$

k. Standard Form: $y = -2x^2 + 4x + 6$

l. Factored Form: $y = -2(x+1)(x-3)$

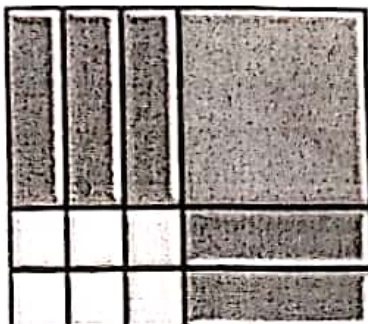
m. Table of values. Must show at least 2 points on each side of the vertex:
 $-2x-2$



x	y
-1	0
0	6
1	8
2	6
3	0

19. Write the standard and factored forms for the following diagrams:

a.



Standard Form: $x^2 + 5x + 6$

Factored Form: $(x+3)(x+2)$

For the following equations, find each characteristic of a quadratic.

20. $y = b^2 - 16b + 63$

1.	Direction of Opening	UP
2.	y-intercept	0, 63
3.	x-intercept(s)	(7, 0) (9, 0)
4.	Axis of Symmetry	$x = 8$
5.	Vertex	(8, -1)
6.	Max/Min point?	min
7.	Vertex Form	$y = (b-8)^2 - 1$
8.	Factored Form	$y = (b-7)(b-9)$

21. $y = (x - 1)^2 - 25$

1.	Direction of Opening	UP
2.	y-intercept	0, -24
3.	x-intercept(s)	(6, 0) (-4, 0)
4.	Axis of Symmetry	$x = 1$
5.	Vertex	(1, -25)
6.	Max/Min point?	min
7.	Standard Form	$y = x^2 - 2x - 24$
8.	Factored Form	$(x-6)(x+4)$

$(x-1)(x-1) - 25$
 $x^2 - 2x + 1 - 25$

22. $y = (x + 5)(x - 3)$

1.	Direction of Opening	UP
2.	y-intercept	-15
3.	x-intercept(s)	(-5, 0) (3, 0)
4.	Axis of Symmetry	$x = -1$
5.	Vertex	(-1, -16)
6.	Max/Min point?	min
7.	Vertex Form	$y = (x+1)^2 - 16$
8.	Standard Form	$y = x^2 + 2x - 15$

~~23. Factor: $x^2 - 24$~~

24. Factor: $x^2 - 64$ $(x+8)(x-8)$

25. Write the vertex form of the function given in the table below:

$y = (x-1)^2 - 4$

x	y
-2	5
-1	0
0	-3
1	-4
2	-3
3	0

$\left. \begin{array}{l} -5 \\ -3 \\ -1 \end{array} \right\} +2$
 $\left. \begin{array}{l} +1 \\ +3 \end{array} \right\} \downarrow$
 $a=1$
 vertex