Algebra 1 – Test Review
Graphing Quadratic Equations & Characteristics & Transformations

Name: Key

Describe the transformation using the quadratic equation.

1. $f(x) = \frac{2}{5}x^2$

Horizontal Shift: zero

Reflection: none x-axis y-axis

Vertical Shift: zero

Dilation: none stretch shrink

2. $f(x) = (x-1)^2 + 5$

Horizontal Shift: Right 1

Reflection: none x-axis y-axis

Vertical Shift: up 5

Dilation: none stretch shrink

3. $f(x) = 5x^2 + 2$

Horizontal Shift: zero

Reflection: none x-axis y-axis

Vertical Shift: up 2

Dilation: none stretch shrink

4. $f(x) = -0.2(x-7)^2 - 10$

Horizontal Shift: Right 7

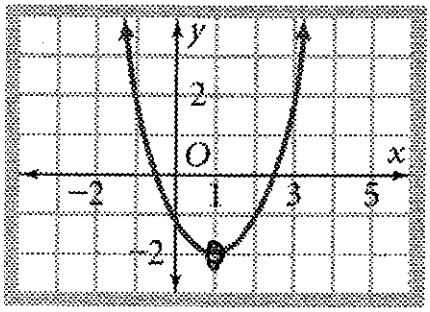
Reflection: none x-axis y-axis

Vertical Shift: down 10

Dilation: none stretch shrink

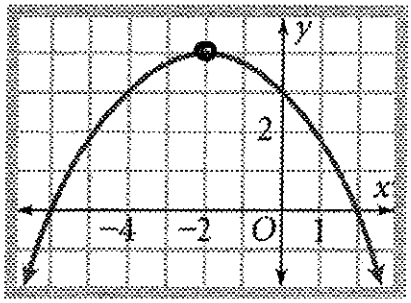
Identify the vertex of each graph; identify whether it is a minimum or a maximum.

5.



Vertex: (1, -2) Min

6.



Vertex: (-2, 4) Max

Without graphing the quadratic functions, complete the requested information:

7. $f(x) = 3x^2 - 7x + 1$

What is the direction of opening? up

Is the vertex a max or min? Min

Wider or narrower than $y = x^2$? narrow

8. $g(x) = -\frac{3}{4}x^2 + x - 3$

What is the direction of opening? down

Is the vertex a max or min? Max

Wider or narrower than $y = x^2$? wider

Graph the following equation and find the requested information.

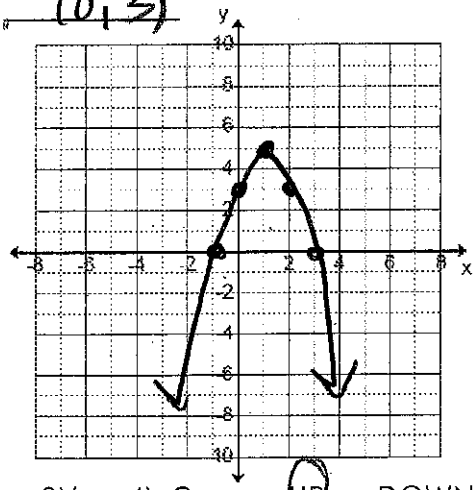
9. $f(x) = -x^2 + 2x + 3$ Opens: UP or DOWN

Form: Standard

AOS: $x = 1$ Vertex: $(1, 4)$

y-intercept: $(0, 3)$

X	Y
-1	0
0	3
1	4
2	3
3	0



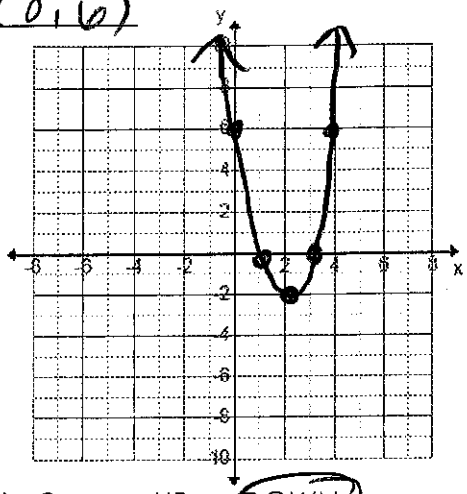
10. $f(x) = 2x^2 - 8x + 6$ Opens: UP or DOWN

Form: Standard

AOS: $x = 2$ Vertex: $(2, -2)$

y-intercept: $(0, 6)$

X	Y
0	6
1	0
2	-2
3	0
4	6



11. $f(x) = 0.5(x - 2)(x + 4)$ Opens: UP or DOWN

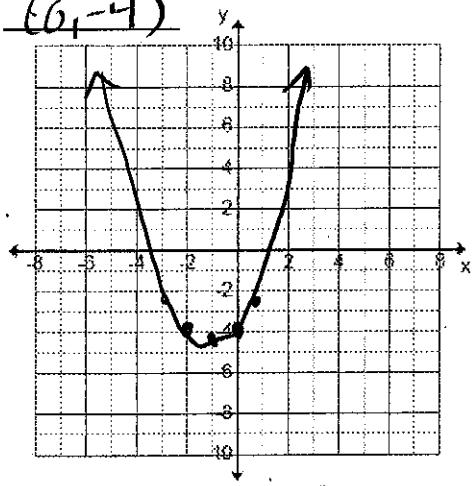
Form: Intercept

x-intercepts: $(2, 0)$ $(-4, 0)$

AOS: $x = -1$ Vertex: $(-1, -4.5)$

y-intercept: $(0, -4)$

X	Y
-3	-2.5
-2	-4
-1	-4.5
0	-4
1	-2.5



12. $f(x) = -x(x + 2)$ Opens: UP or DOWN

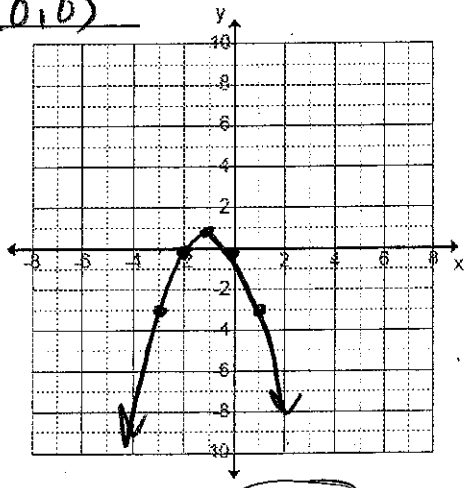
Form: Intercept

x-intercepts: $(0, 0)$ $(-2, 0)$

AOS: $x = -1$ Vertex: $(-1, 1)$

y-intercept: $(0, 0)$

X	Y
-3	-3
-2	0
-1	1
0	0
1	-3



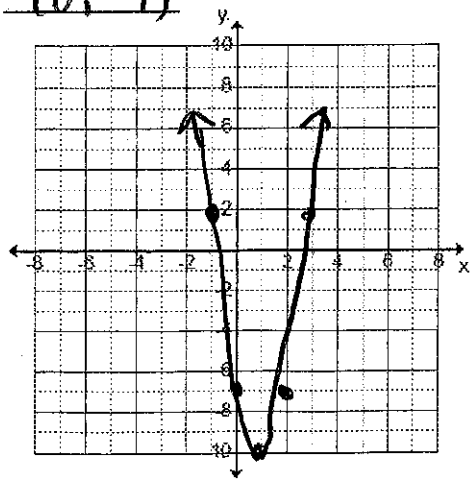
13. $f(x) = 3(x - 1)^2 - 10$ Opens: UP or DOWN

Form: Vertex

AOS: $x = 1$ Vertex: $(1, -10)$

y-intercept: $(0, -7)$

X	Y
-1	2
0	-7
1	-10
2	-7
3	2



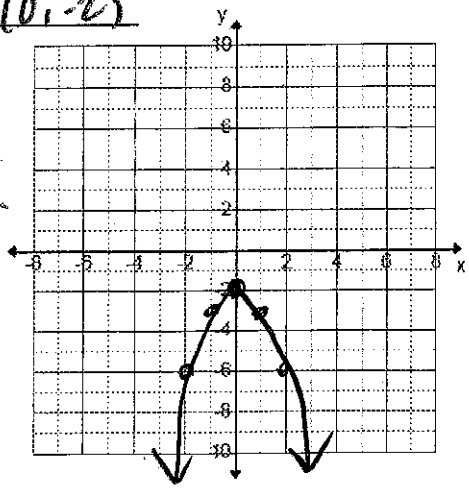
14. $f(x) = -x^2 - 2$ Opens: UP or DOWN

Form: Standard

AOS: $x = 0$ Vertex: $(0, -2)$

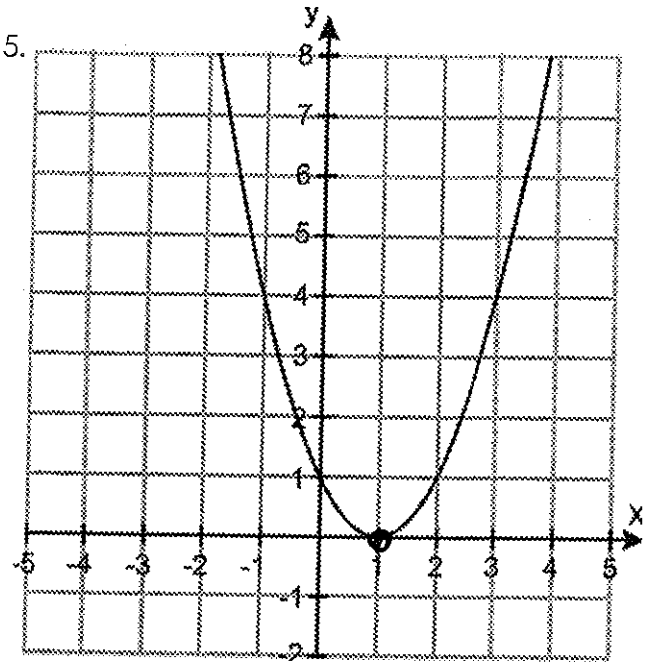
y-intercept: $(0, -2)$

X	Y
-2	-6
-1	-3
0	-2
1	-3
2	-6



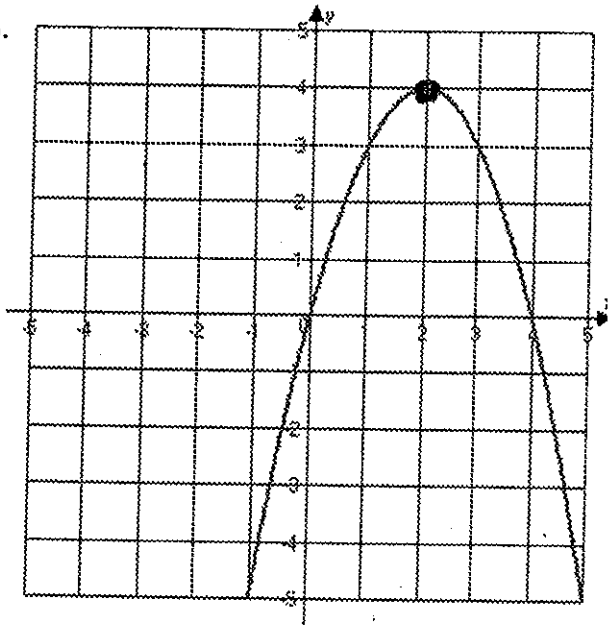
Vertex	(1,0)
Domain	$(-\infty, \infty)$
Range	$[0, \infty)$
Increasing Interval	$(1, \infty)$
Decreasing Interval	$(-\infty, 1)$
Zeros	(1,0)
Y-intercept	(0,1)
Maximum	—
Minimum	$y = 0$
Axis of Symmetry	$x = 1$
Left End Behavior	As $x \to -\infty$, $y \to$ ∞
Right End Behavior	As $x \to \infty$, $y \to$ ∞

15.



Vertex	(2,4)
Domain	$(-\infty, \infty)$
Range	$(-\infty, 4]$
Increasing Interval	$(-\infty, 2)$
Decreasing Interval	$(2, \infty)$
Zeros	(0,0) (4,0)
Y-intercept	(0,0)
Maximum	$y = 4$
Minimum	—
Axis of Symmetry	$x = 2$
Left End Behavior	As $x \to -\infty$, $y \to$ $-\infty$
Right End Behavior	As $x \to \infty$, $y \to$ $-\infty$

16.

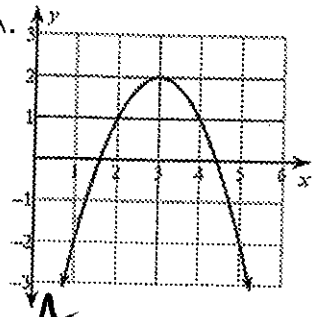


C 17. What is the vertex of the following quadratic function $f(x) = -3(x-2)^2 + 4$?

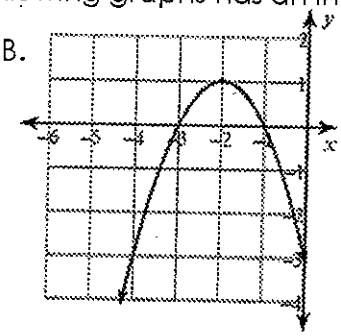
A. (-3, -2) B. (-2, 4) C. (2, 4) D. (-3, 4)

B 18. Which of the following graphs has an increasing interval from $(-\infty, -2)$?

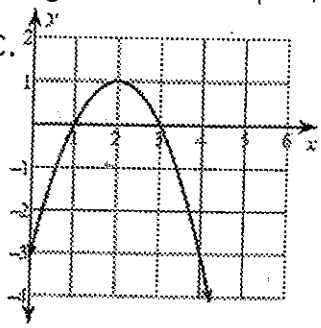
A.



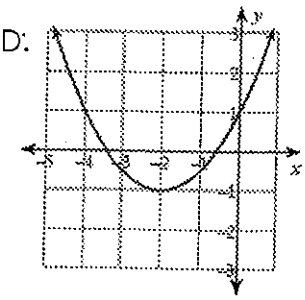
B.



C.



D:



A 19. What transformation occurs in this function $f(x) = x^2 - 7$?

A. down 7 units B. up 7 units C. right 7 units D. left 7 units