SM2H Graphing Quadratics Test #4 Review 2019-20
No Graphing Calculators

Name:_____ Date:_____ Period:_____

- State which form the quadratic function is in: vertex, standard, or factored form.
- Find the vertex. Show all work.
- Find the x-intercepts and the y-intercept. Show all work.

1. $f(x) = x^2 + 4x + 3$

form:_____

vertex:_____

x-intercept(s):_____

y-intercept:_____

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

form:_____

vertex:_____

x-intercept(s):_____

y-intercept:_____

3. $f(x) = 4x^2 + 8x$

form:_____

vertex:_____

x-intercept(s):_____

y-intercept:_____

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

form:_____

vertex:_____

x-intercept(s):_____

y-intercept:_____

5. $f(x) = -x^2 + 4x - 8$

form:_____

vertex:_____

x-intercept(s):_____

y-intercept:_____

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

form:_____

vertex:_____

x-intercept(s):_____

y-intercept:_____

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

form:_____

vertex:_____

x-intercept(s):_____

y-intercept:_____

8. $f(x) = -(x + 4)(x - 7)$

form:_____

vertex:_____

x-intercept(s):_____

y-intercept:_____

Fill in the requested information. Then graph the function. Plot at least 5 points.
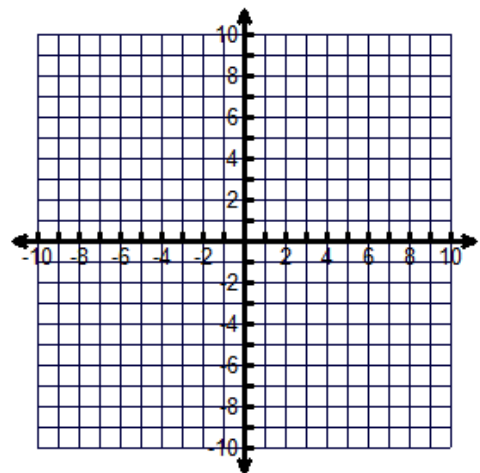
9. $f(x) = -(x - 3)^2 + 4$

Vertex:_____

Axis of Symmetry:_____

 Direction of Opening:_____
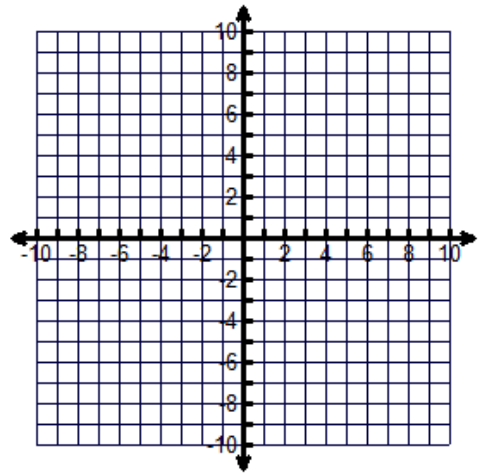
Domain:_____

Range:_____

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

Vertex:_____

Axis of Symmetry:_____

Direction of Opening:_____
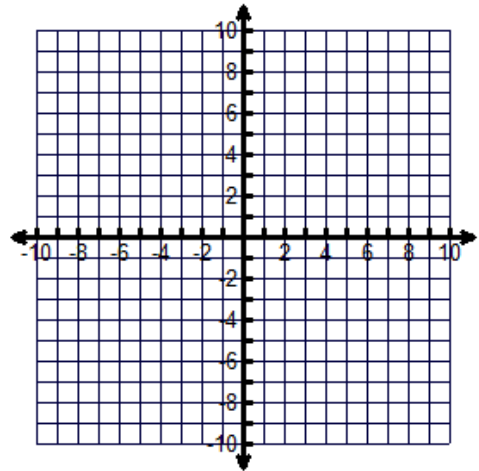
Domain:_____

Range:_____

11. $f(x) = x^2 + 4x + 6$

Vertex:_____

Axis of Symmetry:_____

Direction of Opening:_____
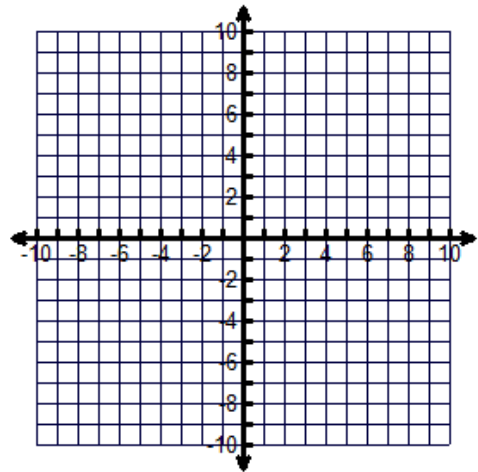
Domain:_____

Range:_____

12. $f(x) = (x + 1)(x - 3)$

Vertex:_____

Axis of Symmetry:_____

Direction of Opening:_____

Domain:_____

Range:_____

13. $f(x) = -x^2 - 4x$
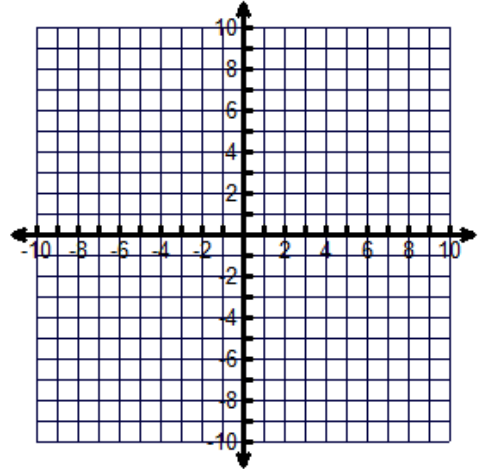
Vertex:_____

Axis of Symmetry:_____

Direction of Opening:_____

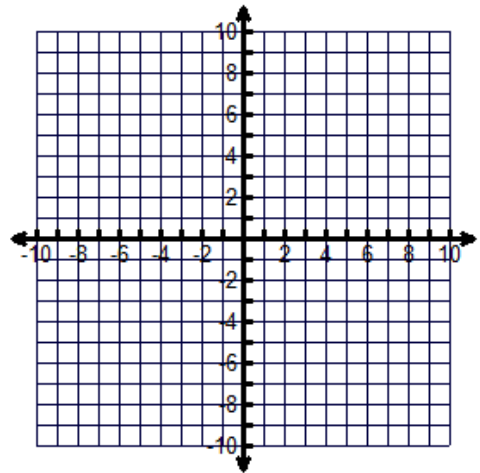Domain:_____

Range:_____

14. $f(x) = -\frac{1}{4}(x + 4)^2$

Vertex:_____

Axis of Symmetry:_____

Direction of Opening:_____

Domain:_____

Range:_____

15. $f(x) = -(x+2)(x-4)$

Vertex:_____

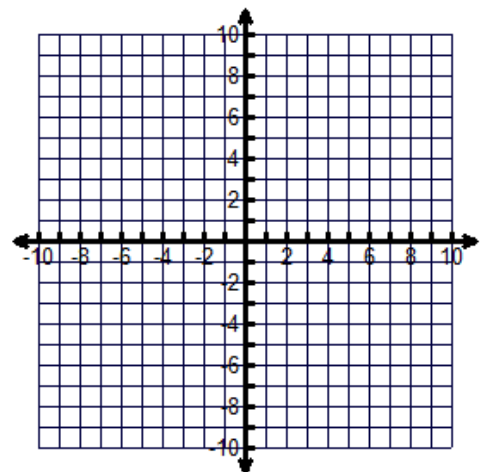Axis of Symmetry:_____

Direction of Opening:_____

Is the vertex a maximum or a minimum? _____

What is the maximum/minimum value? _____

y-intercept: _____

zeros: _____

What are the x-intercepts? _____

16. $f(x) = x^2 + 6x + 3$

Vertex:_____

Axis of Symmetry:_____

Direction of Opening:_____

Is the vertex a maximum or a minimum? _____

What is the maximum/minimum value? _____

y-intercept: _____

zeros: _____

What are the x-intercepts? _____

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

Vertex:_____

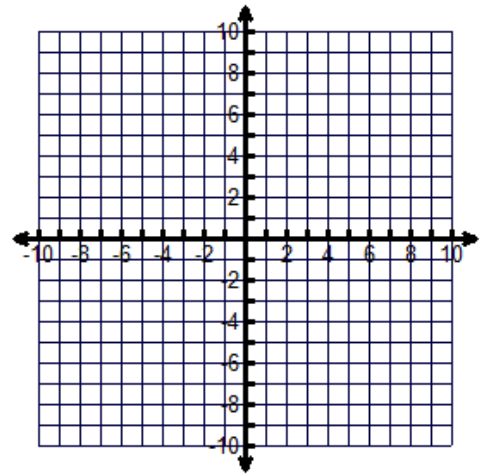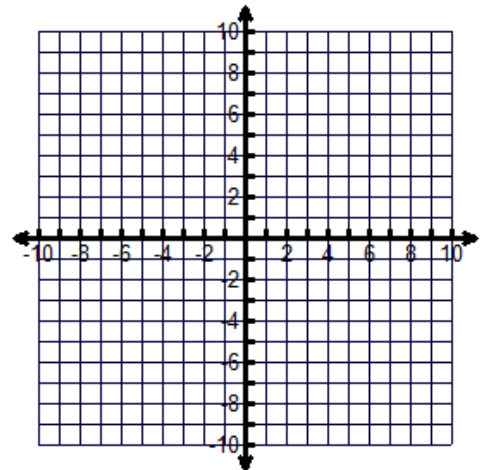Axis of Symmetry:_____

Direction of Opening:_____

Is the vertex a maximum or a minimum? _____

What is the maximum/minimum value? _____

y-intercept: _____

zeros: _____

What are the x-intercepts? _____

18. Write a quadratic equation in **factored form** with x-intercepts $(-9,0)$ & $(4,0)$ and passes through $(-6,10)$.

19. Write a quadratic equation in **vertex form** with vertex: $(-12,-3)$ and passes through $(-8,21)$.

20. Write a quadratic equation in **factored form** with zero's $x = \sqrt{3}$ & $x = -\sqrt{3}$ and passes through $(5,11)$.

21. Write a quadratic equation in **standard form** with x-intercepts $(10,0)$ & $(-4,0)$ and passes through $(-1, 11)$.

22.   An object in launched directly upward at 64 feet per second (ft/s) from a platform. Its altitude is modeled by $h(t) = -16t^2 + 64t + 80$, where t, is the time in seconds and h(t) is the height of the object in feet. Show your work on parts a-e if necessary.

   a.   What is the height of the platform?

   b.   What is the height of the firework when t=4 seconds?

   c.   How long does it take the firework to reach its maximum height?

   d.   What is the maximum height of the firework?

   e.   When is the firework at 130 feet?

   f.   When does the firework hit the ground?

Solve the following inequalities. Write your answers in interval notation.
NO GRAPHING CALCULATORS!!!

23. $(x-8)(x+7)>0$
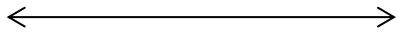
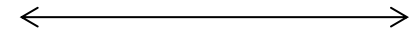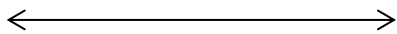24. $-(x+5)(x-2)\leq 0$

$\longleftrightarrow$

$\longleftrightarrow$
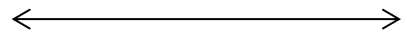
25. $(4x-3)(x+5)\geq 0$
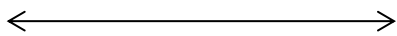
26. $x^2+x-2<0$

$\longleftrightarrow$

$\longleftrightarrow$

27. $x^2-10x\geq 0$

28. $5x^2-9x-2>0$

$\longleftrightarrow$

$\longleftrightarrow$
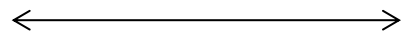
29. $3x^2-27\leq 0$
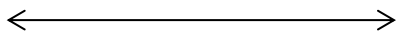
30. $x^2>25$

$\longleftrightarrow$

$\longleftrightarrow$
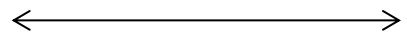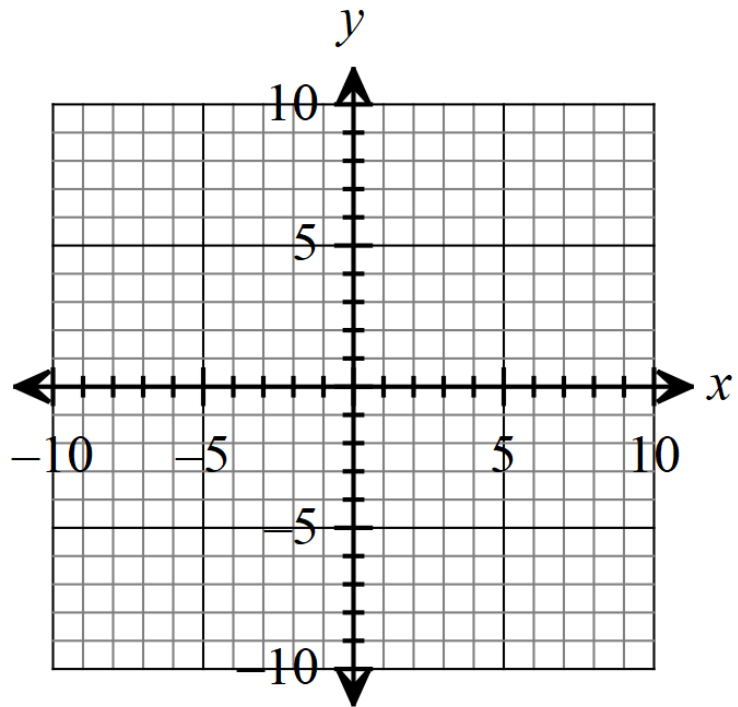
Solve each system of equations by graphing. Write the solutions as ordered pairs. NO GRAPHING CALCULATOR!!!

31.

$2y - 8 = 2x$

$y = x^2 + 2$

32.

$x - y = 3$

$y = x^2 - 3$