Chapter 4 Part I Review Worksheet

Name: _____

Identify the graph's axis of symmetry, vertex, *y*-intercept, whether the graph opens up or down, and its maximum/minimum value. Then graph the function by completing the table.

1.) $y = x^2 + 2x + 1$

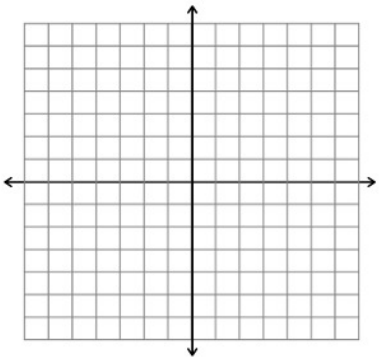
AOS: _____

vertex: _____

y-int: _____

opens: _____

max./min. value: _____



x					
y					

work:

2.) $y = -2x^2 + 4x + 1$

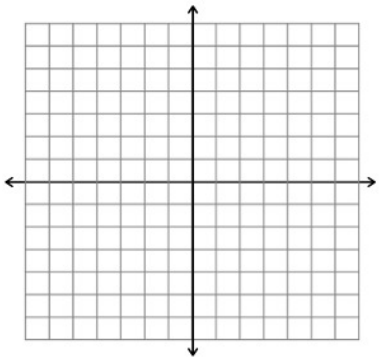
AOS: _____

vertex: _____

y-int: _____

opens: _____

max./min. value: _____



x					
y					

work:

Identify the graph's axis of symmetry, vertex, *y*-intercept, whether the graph opens up or down, and its maximum/minimum value. Then graph the function by completing the table.

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

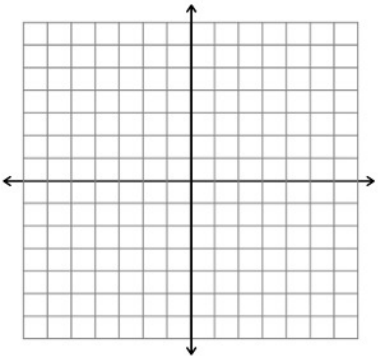
AOS: _____

vertex: _____

y-int: _____

opens: _____

max./min. value: _____



x					
y					

work:

4.) $y = \frac{1}{2}(x - 3)^2 + 2$

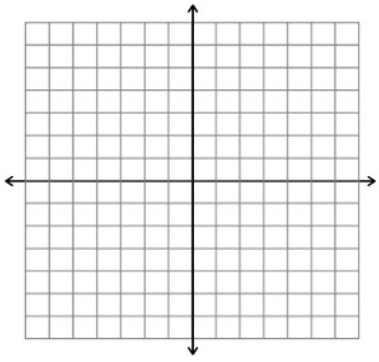
AOS: _____

vertex: _____

y-int: _____

opens: _____

max./min. value: _____

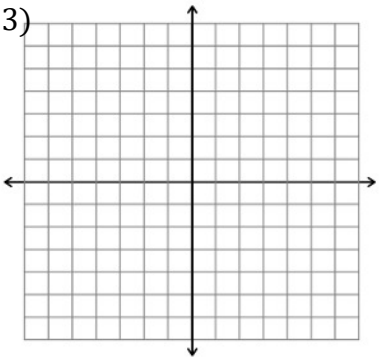


x					
y					

work:

Identify the graph's axis of symmetry, vertex, *y*-intercept, whether the graph opens up or down, and its maximum/minimum value. Then graph the function by completing the table.

5.) $y = -(x-2)(x+3)$



AOS: _____

vertex: _____

y-int: _____

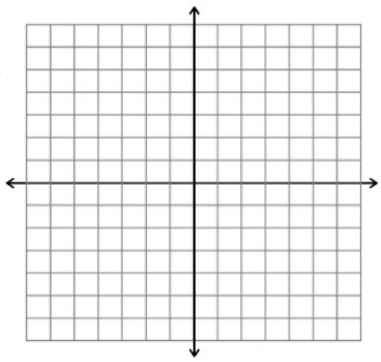
opens: _____

max./min. value: _____

x					
y					

work:

6.) $f(x) = 2(x-4)(x+1)$



AOS: _____

vertex: _____

y-int: _____

opens: _____

max./min. value: _____

y-axis by 2

x					
y					

work:

Factor the expression completely, if possible.

7.) $x^2 - 11x + 28$

8.) $t^2 + 6t + 5$

9.) $4b^2 - 400$

10.) $4t^2 + 8t + 3$

11.) $3r^2 + 9r - 4$

12.) $6x^2 + x - 15$

Write the quadratic in function form.

13.) $y = -(x+1)^2 - 4$

14.) $y = 2(x+5)(x-3)$

Solve the equation using factoring.

15.) $8t^2 + 38t - 10 = 0$

16.) $25x^2 - 80x + 64 = 0$

17.) $4 = x^2 + 5x - 10$

Find the zeros of the quadratic function.

18.) $y = x^2 - 11x + 24$

19.) $f(x) = -16n^2 + 12n$

20.) $y = 16x^2 - 1$

Write the expression in simplest radical form.

21.) $\sqrt{98}$

22.) $\sqrt{27}$

23.) $\sqrt{10} \bullet \sqrt{15}$

24.) $3\sqrt{8} \bullet \sqrt{28}$

25.) $\sqrt{\frac{11}{25}}$

26.) $\sqrt{\frac{17}{12}}$

27.) $\sqrt{\frac{6}{5}}$

28.) $\frac{2}{4 + \sqrt{11}}$

29.) $\frac{4}{8 - \sqrt{3}}$

Solve the equation for x. Write your answer in simplest radical form.

30.) $5x^2 = 80$

31.) $x^2 = 84$

32.) $7x^2 - 10 = 25$

33.) $\frac{1}{3}(x-4)^2 = 11$

34.) $2(x+2)^2 - 5 = 8$

35.) The path of a basketball thrown at an angle of 45° can be modeled by $y = -.02x^2 + x + 6$.

a.) What is the maximum height of the basketball?

b.) What height is the basketball thrown from?

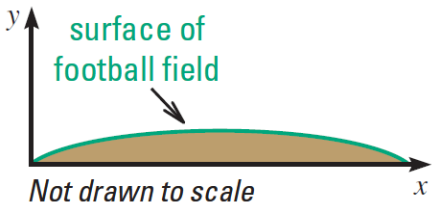
36.) The arch of the Gateshead Millennium Bridge forms a parabola with equation $y = -0.016(x - 52.5)^2 + 45$ where x is the horizontal distance (in meters) from the arch's left end and y is the distance (in meters) from the base of the arch.

a.) What is the width of the arch?

37.) Although a football field appears to be flat, its surface is actually shaped like a parabola so that rain runs off to both sides. The cross section of a field with synthetic turf can be modeld by

$y = -0.000234x(x - 160)$

where x and y are measured in feet.



a.) What is the field's width?

b.) What is the maximum height of the field's surface?

38.) An arch to the entrance of the library can be modeled by $y = -0.13x^2 + 2.5x$ where *x* and *y* are measured in feet. To the nearest foot, what is the height of the highest point of the arch?

39.) **When an object is dropped, its height *h* (in feet) above the ground after *t* seconds can be modeled by the function.**

$$\boldsymbol{h = -16t^2 + h_0}$$

where h_0 is the objects initial height (in feet).

A cliff diver dives off a cliff 40 feet above water.

a.) Write and equation giving the diver's height *h* (in feet) above the water after *t* seconds.

b.) How long is the diver in the air? (Round answers to the nearest tenth of a second)