Show work for full credit

Honors Math II
Unit 4 day 4: writing equations

Name Key
Period_____ Date_____

Graph the following equations.

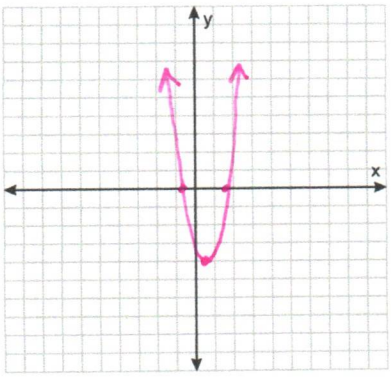
1. $f(x) = 4x^2 - 4x - 3$

V: $(1/2, -4)$

x-intercept(s):

$(-1/2, 0)$ $(3/2, 0)$

y-intercept: $(0, -3)$

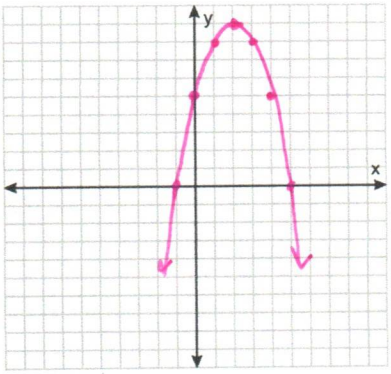


2. $f(x) = -x^2 + 4x + 5$

V: $(2, 9)$

x-intercept(s): $(-5, 0)$ $(-1, 0)$

y-intercept: $(0, 5)$



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

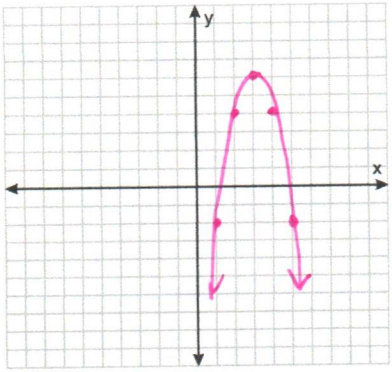
V: $(3, 6)$

x-intercept(s):

$(3 \pm \sqrt{3}, 0)$

y-intercept:

$(0, -12)$



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

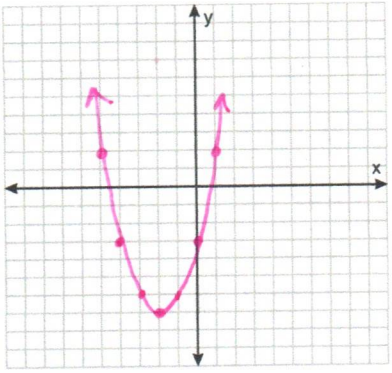
V: $(-2, -7)$

x-intercept(s):

$(-2 \pm \sqrt{7}, 0)$

y-intercept:

$(0, -3)$

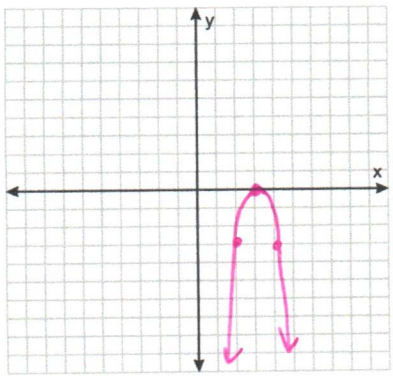


5. $g(x) = -3(x-3)^2$

Vertex: (3,0)
Max/Min:

Write the end behavior and interval of increase and decrease.

increase: $(-\infty, 3]$
decrease: $[3, \infty)$
$x \to -\infty$ $y \to -\infty$
$x \to \infty$ $y \to -\infty$

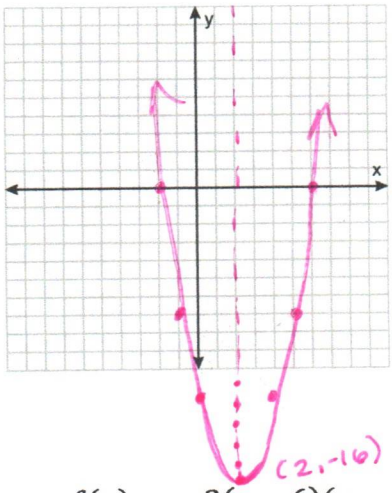


6. $f(x) = x^2 - 4x - 12$ (hint: factor)

Vertex: (2,-16)
Max/Min:

Write the end behavior and interval of increase and decrease.

decrease: $(-\infty, 2]$
increase: $[2, \infty)$
$x \to -\infty$ $f(x) \to \infty$
$x \to \infty$ $f(x) \to \infty$



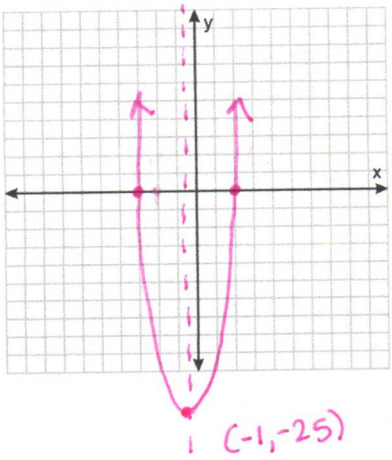
7. $f(x) = (x-4)(x+6)$

Vertex: (-1,-25)
Max/Min:

x-intercept(s): (4,0) (-6,0)

y-intercept: (0,-24)

count by 2

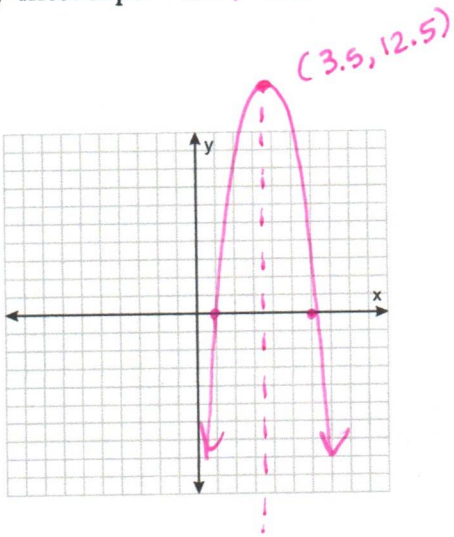


8. $f(x) = -2(x-6)(x-1)$

Vertex: (3.5, 12.5)
Max/Min:

x-intercept(s): (6,0) (1,0)

y-intercept: (0,-12)



Write the quadratic equation for the given information.

9. $(-4,0),(2,0),(0,-16)$

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

10. $(2,0),(-8,0),(0,-8)$

$y=\frac{1}{2}(x-2)(x+8)$

11.

x	y
0	8
1	3
2	0
3	-1
4	0

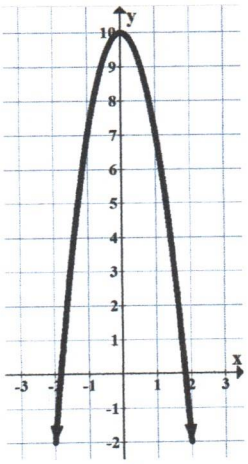
$y=(x-3)^2-1$

12.

x	y
2	7
3	-2
4	-5
5	-2
6	7

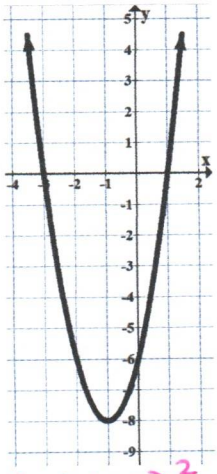
$y=3(x-4)^2-5$

13.



$y=-3x^2+10$

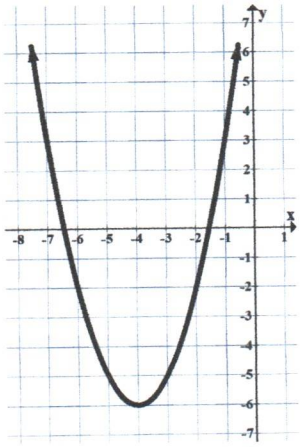
14.



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

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

15.



$y=(x+4)^2-6$

16. Write the equation for the quadratic equation with the given zeros and a leading coefficient of 1. Zeros: $x = 4, x = -8$

$y=(x-4)(x+8)$

17. Write the equation for the quadratic equation with the given zeros and a leading coefficient of -2. Zeros: $x = -1, x = -8$

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

18. Write the equation for the quadratic equation with the given zeros and a leading coefficient of $\frac{1}{3}$. Zeros: $x = 4, x = -8$

$y=\frac{1}{3}(x-4)(x+8)$

Solve for x by factoring.

19. $4x^2 + 10x - 24 = 0$

$x = 3/2, -4$

20. $6x^3 + 22x^2 - 8x = 0$

$x = 0, 1/3, -4$

21. $x^2 + 64 = 0$

$x = \pm 8i$

22. $2x^3 - 8x = 0$

$x = 0, -2, 2$

23. $11x^2 + 18x = -7$

$x = -7/11, -1$

24. $x^2 - 14 = 0$

$x = \pm\sqrt{14}$

25. $9x^2 - 30x = -25$

$x = 5/3$

26. $4x^2 + 121 = 0$

$x = \pm \frac{11}{2} i$

27. $25x^2 - 64 = 0$

$x = \pm 8/5$

28. $x^2 = -5x + 6$

$x = 1, -6$

29. $4x^3 + 24x^2 + 20x = 0$

$x = 0, -5, -1$

30. $15x^2 = -7x + 2$

$x = 1/5, -2/3$

Without graphing find the x-intercept(s) and y-intercept.

31. $y = \frac{1}{3}(x-2)^2 + 9$

x-int: None

y-int: $(0, 31/3)$

32. $y = -2(x-5)^2 + 24$

x-int: $(5 \pm 2\sqrt{3}, 0)$

y-int: $(0, -26)$

33. $y = 5x^2 - 4x - 12$

x-int: $(-6/5, 0)$ $(2, 0)$

y-int: $(0, -12)$

34. $y = x^2 + 13x - 48$

x-int: $(-16, 0)$ $(3, 0)$

y-int: $(0, -48)$