Review 5.1, 5.2,5.4 TEST
Copy in your notebook

Standard Form of Quadratic Eq. $y = ax^2+bx+c$ $(a \neq 0)$
Axis of Symmetry $x = -b/2a$
Vertex $(-b/2a, f(-b/2a))$

Vertex is the lowest or highest point.

Graph pattern (over 1, up/down 'a' times 1, 3, 5, 7)

Find the quadratic equation using a 3x3 system.

Find the vertex on Calculator

All types of factoring (GCF, F and A, Diff of Squares).

Worksheet Answers

10. (x+2)(x-2)
12. (x-25)(x-4)
14. (3x+1)(3x-1)
16. (x+8)(x-8)
18. (x+9)(x-9)
20. (x+10)(x-10)
22. (2x+1)(2x-1)
24. (3x+2)(3x-2)
26. (x+9)(x+4)
28. (x+1)(x+4)
30. (x+5)(x+8)
32. (x+11)(x-1)
34. (5x-6)(x+2)
36. (2x+3)(X+5)
38. (3x+7)(x+3)
40. (x-2)(x+36)
42. 3x(x+7)
44. (x+6)(x-4)
46. (x-14)(x+12)
48. (2x-5)(2x+5)
50. (x+16)(x+1)
52. (2x+3)(2x+3)
54. (3x-2)(3x+2)
56. 2(x+2)(x-2)
58. 2(x+7)(x-7)
60. (x+14)(x+6)
61. (3x+8)(3x+2)
66. $7(x^2+7)$
72. (2x-1)(6x+5)
73. (4x+3)(x-2)

FACTOR EACH PROBLEM. Factor out the GCF first, if possible!

1) $2x^2 - 50$

$2(x^2-25)$

$2(x+5)(x-5)$

2) $x^2 - 10x + 21$

$(x-7)(x-3)$

3) $\frac{15x^7}{5x} - \frac{5x^5}{5x} + \frac{30x}{5x}$

$5x(3x^6 - x^4 + 6)$

4) $12x^2 + 4x - 5$

5) Find the axis of symmetry and vertex. Then graph.

$$y = 2x^2 + 12x + 19$$

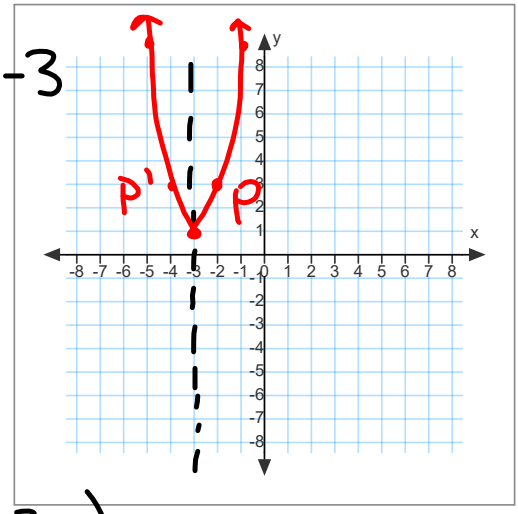
AOS: $-\frac{b}{2a} = x$ $\quad \frac{-12}{4} = -3$

$f\left(-\frac{b}{2a}\right)$

$2(-3)^2 + 12(-3) + 19$

$18 - 36 + 19 = 1$

$(-3, 1)$



ov 1 up 1·2

ov 1 up 3·2

6) Write a quadratic equation for:
(-1, 3) (2, -3) (3, -1)
x y

$y = ax^2 + bx + c$

3 pts

$3 = a - b + c$
$-3 = 4a + 2b + c$
$-1 = 9a + 3b + c$

$-1 \cdot ① + ②$
$-3 = -a + b - c$
$-3 = 4a + 2b + c$
$\boxed{-6 = 3a + 3b}$
1pt

$-1 \cdot ② + ③$
$3 = -4a - 2b - c$
$-1 = 9a + 3b + c$
$\boxed{2 = 5a + b}$
1pt
(-3)

$-6 = -15a - 3b$

$-12 = -12a$

1pt $\boxed{a = 1}$ $b = -3$ $c = -1$

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

7) Determine whether the function is quadratic, linear or constant. Identify a, b, and c.

$9x^2+25$

$y = (3x - 5)^2 - 9x^2$

$(3x-5)(3x-5) - 9x^2$

a b c

$-2x^2 - 4x^2 - 12$

$-6x^2$

8) Given the equation $y = -2(x - 6)^2 + 5$, which of the following statements is not true?

a. The axis of symmetry is $x = 6$
b. The vertex is (6, 5)
c. The y-intercept is (0, 5).
d. The parabola opens downward.

9) A company's profit P for a product at price p is represented by $P = -15p^2 + 150p + 6000$. Calc OK.

What is the maximum profit?

10)

$$y = -(x-3)^2 + a$$

In the equation above, a is a constant. The graph of the equation in the xy-plane is a parabola. Which of the following is true about the parabola?

A) Its minimum occurs at $(-3, a)$.

B) Its minimum occurs at $(3, a)$.

C) Its maximum occurs at $(-3, a)$.

D) Its maximum occurs at $(3, a)$.

GO COUGARS!

HW - Review for Test

WB pg 35-36 #1-7, 9, 11, 12, 21-23

WB pg 37 #5, 9, 11, 23, 33, 35