Honors Math 2 **Name**_____

Test 5 Review

Solve each equation over the set of complex roots.

1) $(x-2)(3x+1)=0$

2) $0=x(x-3)$

3) $2(x+12)(5x-2)=0$

4) $x^2+8=5x+2$

5) $8-2x^2=32$

6) $4(x-3)^2-6=42$

7) $x^2+8x+2=0$

8) $5x^2-8x-4=0$

9) $3=4x^2-8x+8$

Determine the x-and y-intercepts of each of the following functions.

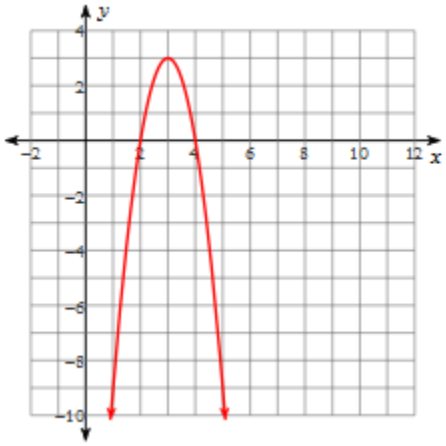
10) $y=\frac{1}{2}(x-6)^2-3$

11) $y=2x^2-6x+20$

12) $y=-3(x+1)(x-5)$

Write the equation of the parabola in the three forms.

13)

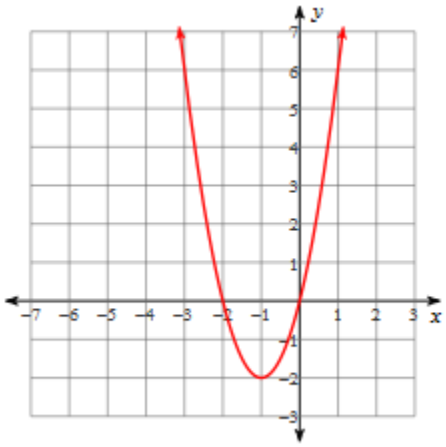


Vertex Form:

Factored Form:

Standard Form

14)

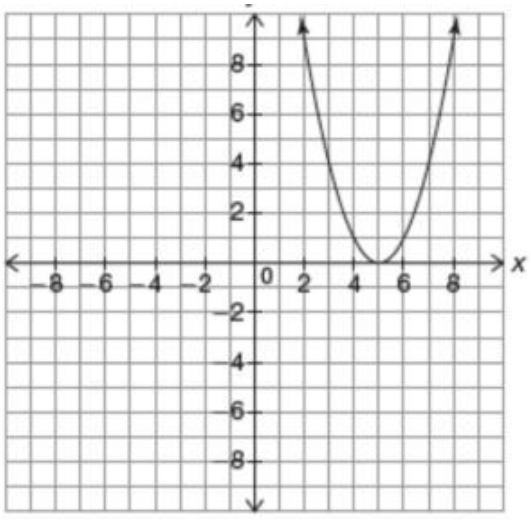


Vertex Form:

Factored Form:

Standard Form

15)



Vertex Form:

Factored Form:

Standard Form

Solve each inequality:

16) $5x - 7 > 8$

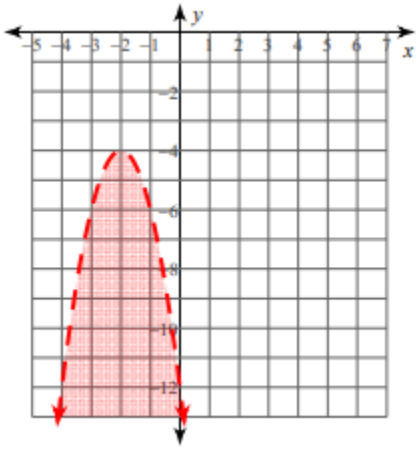
17) $(x + 3)(x - 1) \geq 0$

18) $3x^2 - 8x + 4 < 0$

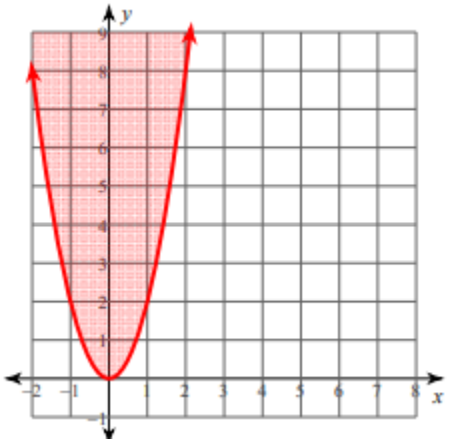
19) $x^2 + 5x \leq 30 - 2x$

Write the inequality that represents each of the following graphs.

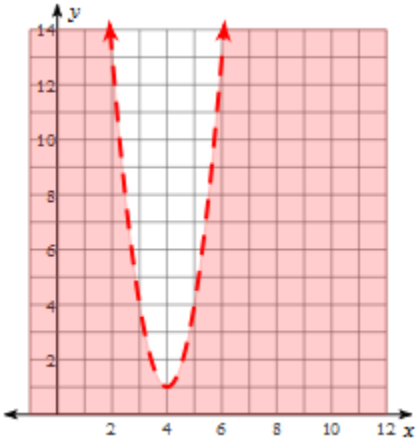
20) _____



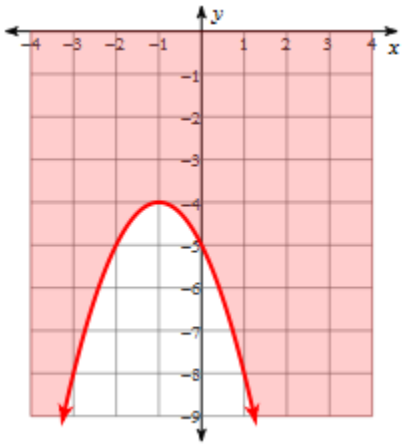
21) _____



22) _____

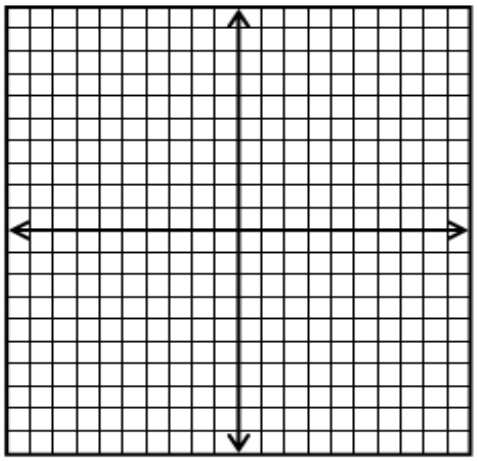


23) _____

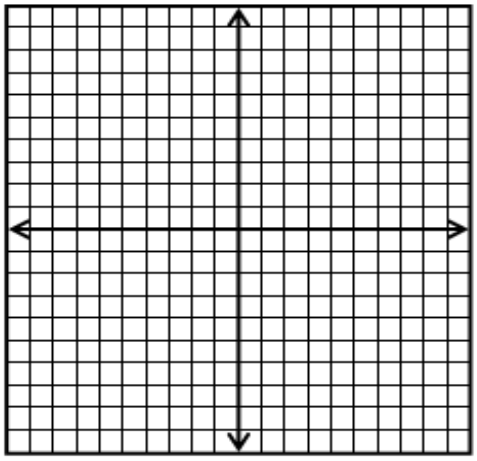


Graph each function.

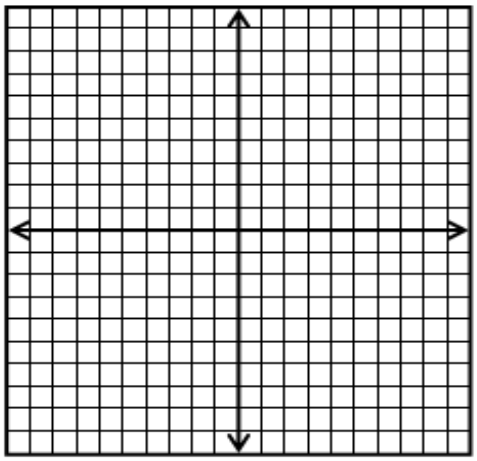
24) $y < -(x-2)^2 + 3$



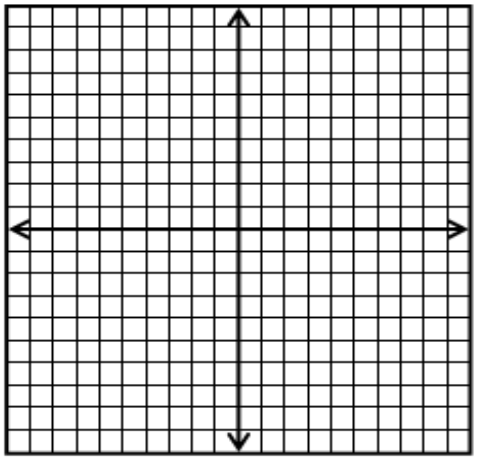
25) $y \leq 2x^2 - 5$



26) $y \geq x^2 - 8x + 16$



27) $y > -3(x-3)(x+1)$



Put the following functions into vertex form. State the vertex and axis of symmetry.

28) $y = x^2 + 6x - 1$

29) $f(x) = 3x^2 - 12x + 2$

30) $g(x) = -2x^2 + 5x + 1$

Match each expression with an equivalent form:

31) $\sqrt{9x^4y^7}$

32) $\sqrt{\frac{18x^7y^{10}}{2x^3y^3}}$

33) $3x^{\frac{1}{3}} \cdot x^{\frac{5}{3}} \cdot \left(y^{\frac{1}{3}}\right)^6$

34) $\sqrt[3]{27x^3y^6}$

35) $(27x^6y^9)^{\frac{1}{3}}$

A) $3x^2y^3$

B) $3x^2y^3\sqrt{y}$

C) $3(xy)^2$

D) $3xy^2$

E) $3x^2y$

Write each expression in radical form. Simplify when necessary.

36) $m^{\frac{1}{2}}$

37) $(6b)^{\frac{3}{2}}$

38) $12x^{\frac{2}{3}}$

Write each expression using rational exponents.

39) $4\sqrt[3]{xy^2}$

40) $x\sqrt[5]{x^4}$

41) $\sqrt{5x}$

Simplify. Use absolute value signs when necessary.

42) $3\sqrt{8}$

43) $-5\sqrt{98n^3}$

44) $\sqrt[3]{-16x^6y^5}$

45) $\sqrt[4]{48a^8b^9}$

46) $\sqrt{81x^2y^8}$

47) $-2xy^3\sqrt{18x^4y^7z}$

48) $3\sqrt{24} - \sqrt{54} - 2\sqrt{45}$

49) $\left(3\sqrt{5}\right)^2$

50) $\left(5\sqrt{6x^3}\right)\left(-2\sqrt{3x^5}\right)$

51) The length of a rectangle is 4 m more than the width. The area of the rectangle is 45 m^2. Find the length and the width.

52) The length of a photograph is 1 cm less than twice the width. The area is 28 cm^2. Find the dimensions of the photograph.

53) If the sides of a square are decreased by 5 cm, its area becomes 81 $c\mathrm{m}^2$. Determine the area of the original square.

54) A square field has 3 m added to its length and 2 m added to its width. The field then had an area of 90 m^2. Find the length of a side of the original field.

55) Suppose you are building a storage box of volume 4368 in^3. The length of the box will be 24 in. The height of the box will be 1 in. more than its width. Find the height and width of the box.