Algebra 2 Honors

Quadratics Quiz 2 Review

Name _____
Assignment:

1 – 15. Simplify the following.

1. $3\sqrt{1152x^7}$

2. $\sqrt{8}\ \sqrt{16}\ \sqrt{2}\ \sqrt{3}$

3. $\sqrt{8}+\sqrt{16}\quad\sqrt{2}$

4. $i^9\sqrt{18y}\ \ i^{17}\sqrt{6y^2}$

5. $\sqrt{\frac{-25}{x^3}}\ \sqrt{\frac{-24}{x^2}}$

6. $\sqrt{4y^3}+\sqrt{4y^3}$

7. $\frac{2\sqrt{6}}{3\sqrt{-3}}$

8. $\frac{2+\sqrt{6}}{2i}$

9. $\frac{4-3i}{4+3i}$

10. $\frac{1+\sqrt{6}}{2-\sqrt{-18}}$

11. $\frac{1}{2}(2+3i)\quad(3+5i)$

12. $\left(5+\sqrt{6}\right)^2\left(5\quad\sqrt{6}\right)^2$

13. $\frac{4}{\sqrt{-5}}\quad\frac{2}{\sqrt{10}}$

14 – 15. Solve the following by Completing the Square.

14. $y^2 \quad 4y + 8 = 0$

15. $3d^2 + 4d + 3 = 0$

16. An object thrown or fired straight upward at an initial speed of v_0 ft/s will reach a height of *h* feet after *t* seconds, where *h* and *t* are related by the formula: $(t) = \quad 16t^2 + v_0 t$. Suppose that a bullet is shot straight upward with an initial speed of 240 ft/s. A) When does it reach a height of 800 ft? B) When does it hit the ground again?

17. Rewrite the following equation in Vertex Form by Completing the Square: $y = \quad 3x^2 + 12x \quad 7$

18. Graph the equation $y = x^2$. Identify the transformations of the additional equations and graph them as well. This is to be done <u>without</u> a calculator. List the Domain and Range of each.

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

Trans:_____

_____

Domain:_____

Range:_____

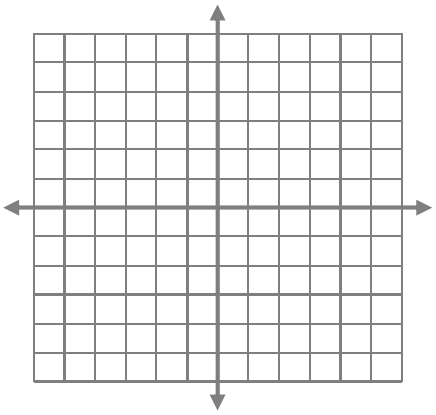
b. $y = 3x^2 \quad 6$

Trans:_____

_____

Domain:_____

Range:_____



19 – 20. Identify all key pieces of information and graph the following quadratics. No Calculator.

19. $y = \quad x^2 + 6x + 8$

AoS:_____

Vertex:_____

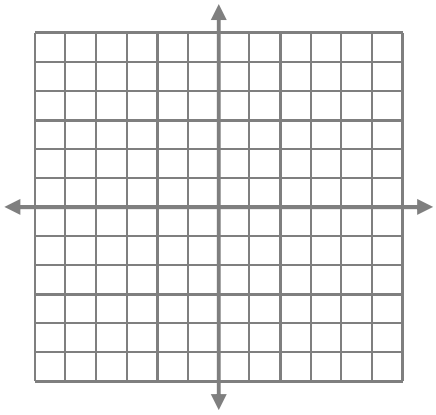
Max/Min Value:__

x-int:_____

y-int:_____

Domain:_____

Range:_____



20. $y = 2(x \quad 1)^2 \quad 4$

AoS:_____

Vertex:_____

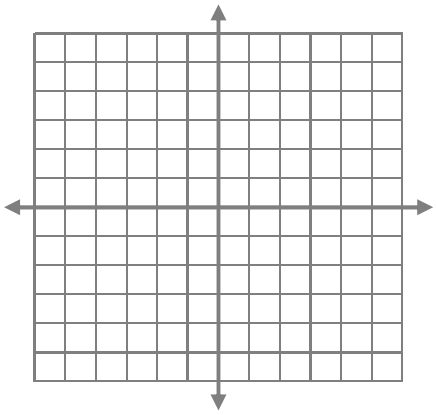
Max/Min Value:__

x-int:_____

y-int:_____

Domain:_____

Range:_____



21 – 23. Find an equation $y \quad k = a(x \quad)^2$ satisfying the given conditions.

21. Vertex (4, -7); contains (8, 1)

22. Axis is x = 2; contains origin and (1, 6)

23. x-intercepts are 3 and 7; maximum of *y* is 6

Answers

1. $72x^3 i\sqrt{2x}$
2. $16\sqrt{3}$
3. $i\sqrt{2}+4i \quad OR \quad (\sqrt{2}+4)i$
4. $6y\sqrt{3y}$
5. $\frac{-10\sqrt{6x}}{x^3}$
6. $2y\sqrt{y}+2yi\sqrt{y}$
7. $\frac{-2i\sqrt{2}}{3}$
8. $\frac{-2-\sqrt{6}}{2}i$
9. $\frac{7}{25} \quad \frac{24}{25}i$
10. $\frac{1+\sqrt{6}}{11}+\frac{3\sqrt{2}+6\sqrt{3}}{22}i$
11. $2 \quad \frac{7}{2}i$
12. 961
13. $\frac{-\sqrt{10}}{5} \quad \frac{4\sqrt{5}}{5}i$
14. $y = 2 \pm 2i$
15. $d = \frac{-2}{3} \pm \frac{\sqrt{5}}{3}i$
16. $A)\ t = 5\ sec\ and\ 10\ sec \quad B)\ t = 0\ sec\ and\ 15\ sec$
17. $y = \quad 3(x \quad 2)^2 + 5$
18. $a)\ Reflect\ over\ x \quad axis, Vertical\ S\ \ rink\ by\ ½, Left\ 3\ \ Domain: (\ \ \infty, \infty) \quad Range: (\ \ \infty, 0]$
18. $b)\ Vertical\ Stretc\ \ by\ 3, Down\ 6 \quad Domain: (\ \ \infty, \infty) \quad Range: [\ \ 6, \infty)$
19. $AoS: x = 3 \quad Vertex: (3, 17) \quad Max\ @\ 17 \quad x \quad int: \left(3 \pm \sqrt{17}, 0\right) \quad y \quad int: (0, 8) \quad Domain: (\ \ \infty, \infty) \quad Range: (\ \ \infty, 17]$
20. $AoS: x = 1 \quad Vertex: (1, \quad 4) \quad Min\ @ \quad 4 \quad x \quad int: \left(1 \pm \sqrt{2}, 0\right) \quad y \quad int: (0, \quad 2) \quad Domain: (\ \ \infty, \infty) \quad Range: [\ \ 4, \infty)$
21. $y + 7 = \frac{1}{2}(x \quad 4)^2$
22. $y \quad 8 = \quad 2(x \quad 2)^2$
23. $y \quad 6 = \frac{-3}{2}(x \quad 5)^2$

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