

Algebra 12
Review Chapter 10

Name: _____

Make sure you know how to do EVERY single problem before you walk into class on Wednesday!

Find the following for each equation below:

- a) Vertex
- b) Is the graph **narrower/wider** than the parent function $y = x^2$?
- c) Does the graph open **up/ down**
- d) Equation of axis of symmetry:
- e) Max/Min value
- f) y-intercept
- g) x-intercept (s):
- h) graph

1) $y = 3x^2$

2) $y = -x^2 + 2$

3) $y = x^2 + 6x + 10$

4) $y = -2x^2 + 4x - 3$

Solve the following by graphing. Show a sketch.

5) $x^2 + 5x - 14 = 0$

6) $-x^2 + 3x + 4 = 0$

x = _____

x = _____

Use the quadratic formula to solve the equation. Round to the nearest hundredth.

7) $6q^2 + 4q = 5q - 2$

8) $4d + 2 = (d - 1)(d + 3)$

Solve the following by any method (must have exact answers!)

9) $p^2 + 8p - 15 = 0$

10) $2y^2 - 7y = 10$

11) $9z^2 + 12z + 4 = 0$

12) $16t^2 - 9 = 0$

13) $2(x - 6)^2 = 24$

14) $4n^2 - 13 = -20$

15) $6q^2 + 4q = 5q - 2$

16) $4d + 2 = (d - 1)(d + 3)$

17) $a^2 = 28$

18) $2w^2 - 72 = 0$

19) $(t + 5)^2 = 4$

- 20) For the period 1990–2001, the number of tickets sold (in millions) for Broadway road tours can be modeled by the function $y = -10.4x^2 + 132x + 332$ where x is the number of years since 1990. In what year was 750 million tickets sold for Broadway road tours?

Tell where the equation has two solutions, one solution, or no solutions.

21) $3r^2 - r + 2 = 0$

22) $5c^2 - 2c - 8 = 0$

23) $3z^2 + 6z = -3$

Factor the following:

24) $x^2 + 8x + 7$

25) $b^2 - 7b + 10$

26) $w^2 - 12w - 13$

27) $p^2 + 10p + 25$

28) $m^2 - 10m + 24$

29) $y^2 - 5y - 24$

30) $2y^2 + 15y + 7$

31) $3a^2 - 13a + 4$

32) $5d^2 - 18d - 8$

33) $36m^2 - 81$

34) $9c^2 + 24c + 16$

35) $12r^2 + 4x$

Solve by factoring:

36) $x^2 + 14x + 49 = 0$

37) $3m^2 + 30m + 75 = 0$

38) $n^2 - 10n + 24 = 0$

39) $35k^2 - 22k + 7 = 4$

40) $6x^2 = 14x$

Solve by Undo:

41) $m^2 + 7 = 88$

42) $10n^2 - 10 = 470$

43) $4(r + 1)^2 + 3 = 39$