Algebra 1

Name_____
Date_____

Chapter 10 Test study guide

Explain how the graph of each function below is different from the parent function: $y = x^2$

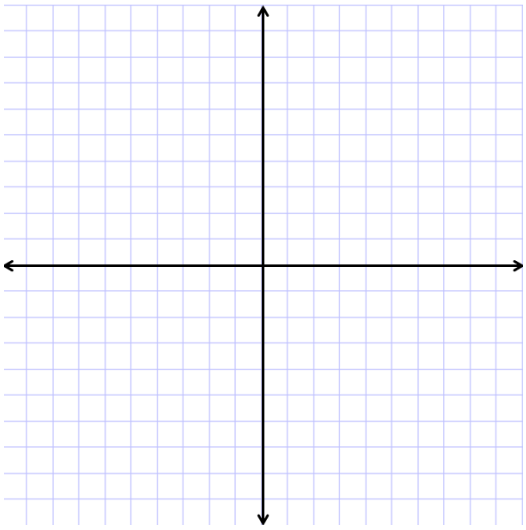
1. $y = -2x^2 + 2$
2. $y = -x^2$
3. $y = 2x^2$
4. $y = 3x^2 - 4$

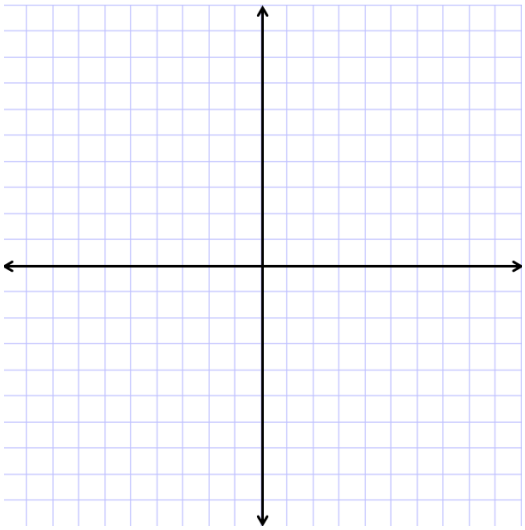
Write each equation in vertex form. Give the coordinates for the vertex and determine if that point is a maximum or minimum

5. $y = x^2 - 6x + 5$
6. $y = x^2 + 5x - 12$

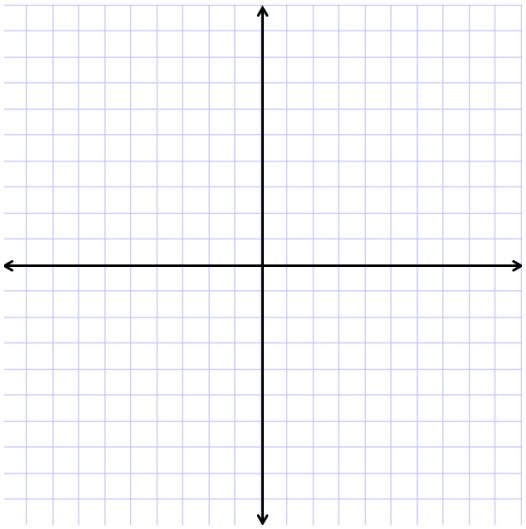
Graph each function. Place at least 3 points on each side of the axis of symmetry.

7. $y = \frac{2}{3}x^2$
8. $y = -x^2 + 3$

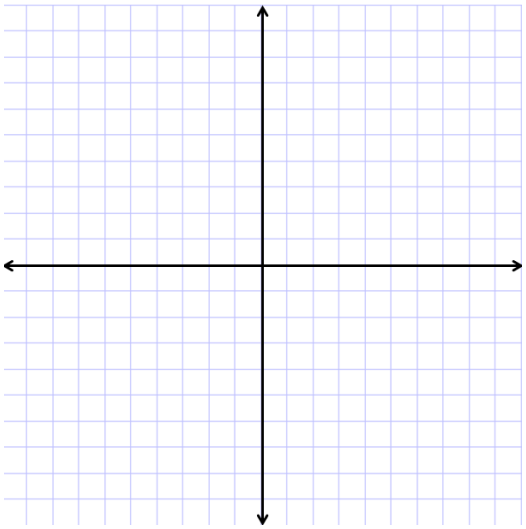




9. $y = x^2 + 2$



10. $y = x^2 - 5$



Find the number of x-intercepts of each function.

11. $y = 8x^2$

12. $y = 4x^2 + 9$

13. $y = -3x^2 + x - 4$

14. $y = x^2 - 5x$

Find the value of n such that each expression is a perfect square trinomial. (what would you add to each side to complete the square?)

15. $p^2 + 10p + \mathbf{n}$

16. $y^2 - 60y + \mathbf{n}$

17. $x^2 - 14x + \mathbf{n}$

Solve each equation provide answers as whole numbers, simplified fractions, or simplified square roots.

18. $x^2 - 18x = 19$

19. $4a^2 + 8a - 20 = 0$

20. $(x - 5)(2x + 1) = 0$

21. $x^2 = 10x$

22. $x^2 - 7x = -12$

23. $3x^2 = 48$

24. $2x^2 - 5x = 12$

25. $-x^2 + 6x - 4 = 0$

Model each problem with a quadratic equation. Then solve.

26. The volume of a square pyramid is given by the formula $V = \frac{1}{3}hx^2$, where *h* is the height of the pyramid and *x* is the length of one side of the base. A pyramid with a height of 15 ft has a volume of 2880 ft^3. What is the length of one side of the base?

Equation: _____ x = _____

27. The area of a soccer field is 5000 yd^2. The length of the field is twice the width. Find the dimensions of the field.

Equation: _____ W = _____ L = _____

Choose the best model for the table of values (exponential, quadratic or linear) and write an equation.

28:

x	y
2	20
3	68
4	260
5	1028
6	5000

29:

x	y
1	-1
2	2
3	5
4	8
5	11

30:

x	y
-1	-5
0	3
1	11
2	19
3	27

31:

x	y
-1	-2
0	-1
1	4
2	13
3	26

32:

x	y
3	28
4	34
5	40
6	46
7	52

33:

x	y
-3	-1
-2	1
-1	3
0	5
1	7

34:

x	y
2	14
3	32
4	86
5	248
6	734

35:

x	y
0	-2
1	3
2	33
3	213
4	1293

36:

x	y
3	20
4	25
5	30
6	35
7	40

37:

x	y
2	33
3	133
4	633
5	3133
6	15633