CP Algebra 2   Name _Key_____

Unit 7 Transformations Day 1 Homework   Date _____ Block _____

Using the graph of $f(x) = x^2$ as a guide, describe the transformation of the quadratic.

1. $f(x) = (x-4)^2$

right 4

2. $f(x) = (x-3)^2 + 2$

right 3
up 2

3. $f(x) = (x+1)^2 - 3$

left 1
down 3

4. $f(x) = 3x^2$

vertical
Stretch
by 3

5. $f(x) = -(5x)^2 + 1$

reflect across
the x-axis

horizontal compr.
by 1/5

up 1

6. $f(x) = -\frac{1}{2}(x-2)^2 + 4$

reflect across the
x-axis

vertical compr.
by 1/2

right 2 , up 4

7. $f(x) = -(x+5)^2$

reflect across
the x-axis

left 5

8. $f(x) = 8(x+2)^2 - 1$

vertical stretch
by 8

left 2

down -1

9. $f(x) = 4x^2 - 2$

vertical stretch
by 4

down -2

10. $f(x) = (\frac{1}{3}x - 2)^2 + 5$

horizontal stretch
by 3

right 2

up 5

11. $f(x) = \frac{5}{2}x^2 + 4$

vertical stretch
by 5/2

up 4

12. $f(x) = -2(x+1)^2 - 3$

reflect across
the x-axis

left 1

down 3

vertical stretch
by 2

Use the description of the transformation to write each quadratic in vertex form.

13. translation right 3 and up 2

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

14. vertical stretch by a factor of 3 and translation left 4

$$f(x) = 3(x+4)^2$$

15. reflection across the x-axis and translation up 1

$$f(x) = -x^2 + 1$$

16. translation left 1 and down 5

$$f(x) = (x+1)^2 - 5$$

17. reflection across the x-axis and a horizontal compression $\frac{1}{4}$

$$f(x) = -(4x)^2$$

18. translation up 3 and reflection across the x-axis

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

19. vertical stretch by 2, reflection across the x-axis, and translation right 6

$$f(x) = -2(x-6)^2$$

20. horizontal compression by $\frac{2}{3}$, translation left 1 and up 1

$$f(x) = (3/2x + 1)^2 + 1$$

21. reflection over the x-axis, vertical stretch by 3, translation down 4

$$f(x) = -3x^2 - 4$$

22. translation up 7 and right 4, horizontal stretch by 3

$$f(x) = (1/3x - 4)^2 + 7$$

23. reflection over the x-axis, vertical compression by $\frac{1}{2}$, translation right 2 and down 3

$$f(x) = \frac{-1}{2}(x-2)^2 - 3$$

24. reflection over the x-axis, horizontal stretch by 3, translation up 4

$$f(x) = -(1/3x)^2 + 4$$