Name _____ Date _____ Period _____

SM3 Transformations

For each function below:

- State the name of the parent function
- Describe the transformations made from the parent function
- Then match each equation to the graph below

1. $f(x) = 2(x - 3)^2 + 5$

2. $f(x) = \sqrt{x - 7} + 2$

3. $f(x) = |x + 2| - 4$

4. $f(x) = -(x - 5)^2 + 3$

5. $f(x) = 2|-(x - 4)|$

6. $f(x) = 2|x - 4| + 2$
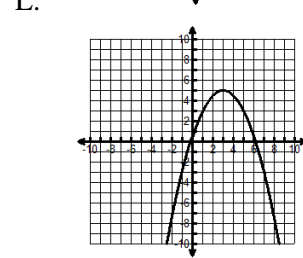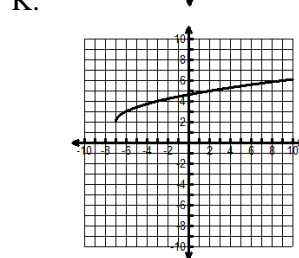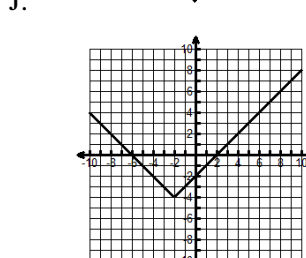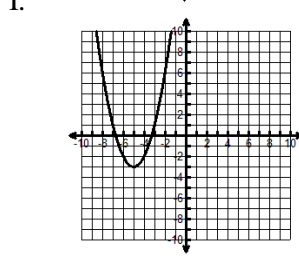
7. $f(x) = -\frac{1}{2}(x - 3)^2 + 5$

8. $f(x) = \sqrt{-x} - 1$

9. $f(x) = \sqrt{x + 7} + 2$

10. $f(x) = -\sqrt{x} + 1$

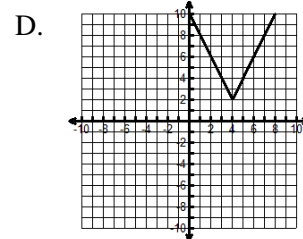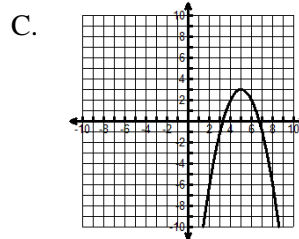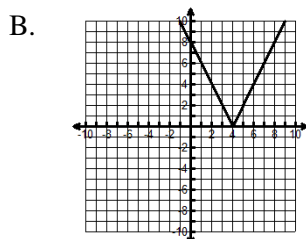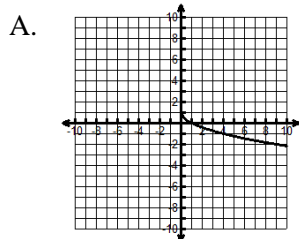11. $f(x) = -|x - 4|$

12. $f(x) = (x + 5)^2 - 3$
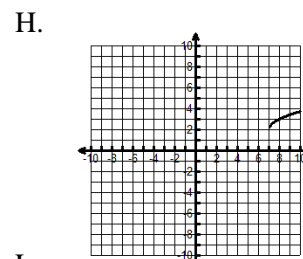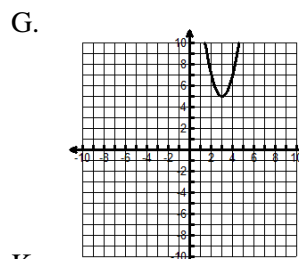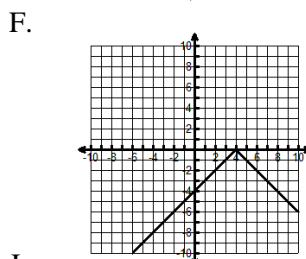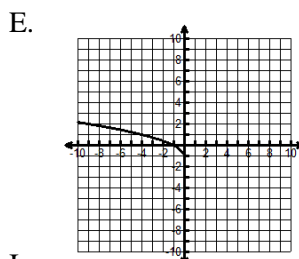
_____

A.

B.

C.

D.

E.

F.

G.

H.

I.

J.

K.

L.

For each function below:

- State the name of the parent function
- Describe the transformations made from the parent function
- Then match each equation to the graph below

13. $f(x) = 4(x - 3)^3 + 5$ 14. $f(x) = -3x + 2$ 15. $f(x) = 2x + 3$

16. $f(x) = -(x - 5)^3 + 3$ 17. $f(x) = -\sqrt[3]{x - 7} + 2$ 18. $f(x) = -\frac{1}{4}(x - 3)^3 + 5$
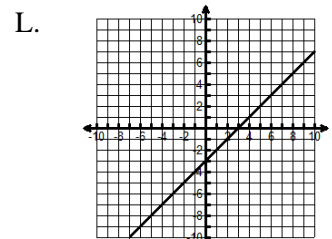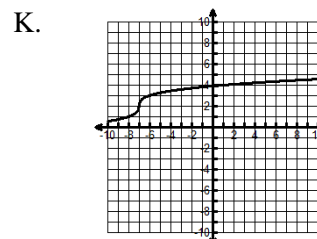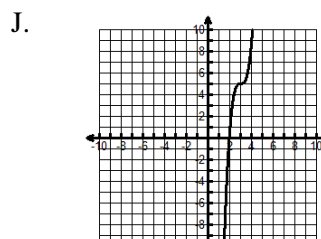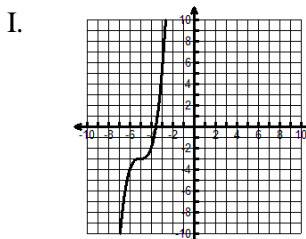
19. $f(x) = -x$ 20. $f(x) = \sqrt[3]{-x} - 1$ 21. $f(x) = (x + 5)^3 - 3$

22. $f(x) = -\sqrt[3]{x} + 1$ 23. $f(x) = x - 3$ 24. $f(x) = \sqrt[3]{x + 7} + 2$

A.

B.

C.

D.

E.

F.

G.

H.

I.

J.

K.

L.
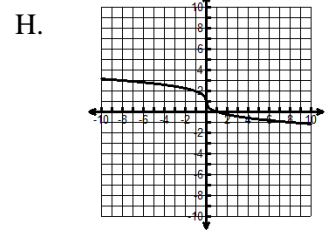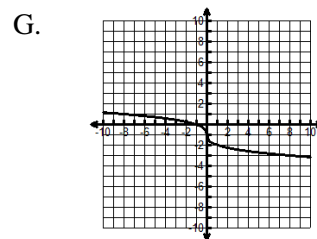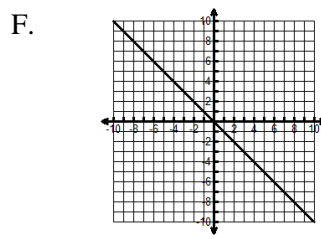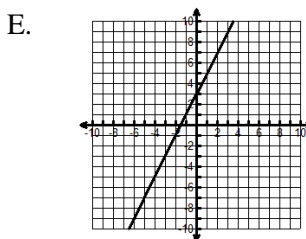
Given the parent function, and a list of the transformations; write an equation for the function.
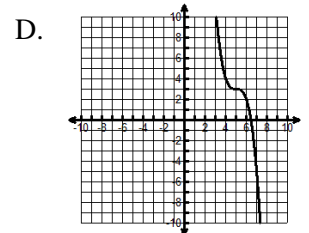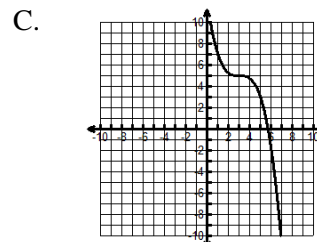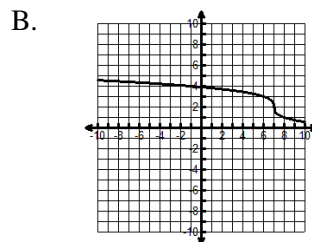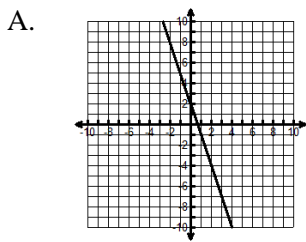
25. **Parent Function:** $f(x)=|x|$

   Transformations: Up 2, Left 5, Reflection over the x-axis
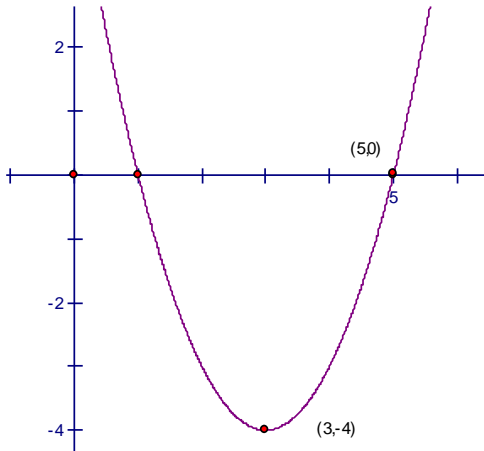
26. **Parent Function:** $f(x)=\sqrt[3]{x}$

   Transformations: Down 3, Left 4, Vertical compression by $\frac{1}{4}$

27. **Parent Function:** $f(x)=x^3$

   Transformations: Up 1, Reflection over the y-axis

Determine the transformations that were used to change the given parent function to the function that is graphed. Then write an equation for the function graphed.
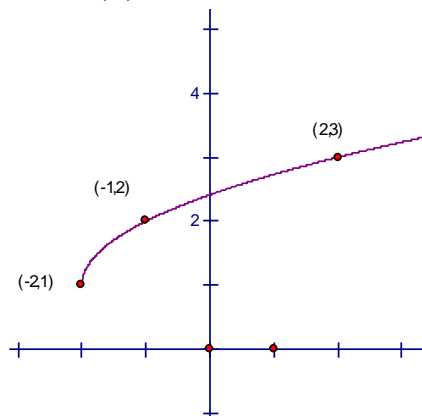
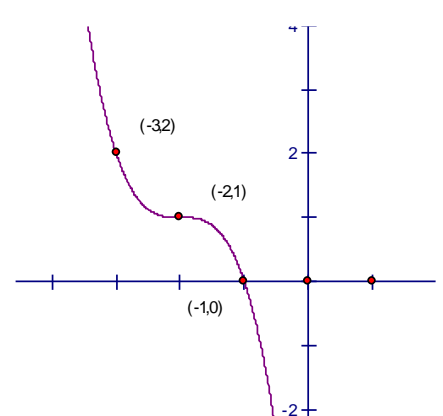28. $f(x)=x^2$

(5,0)

(3,-4)

Transformations:

Equation:

29. $f(x)=\sqrt{x}$

(2,3)

(-1,2)

(-2,1)

Transformations:

Equation:

30. $f(x)=x^3$

(-3,2)

(-2,1)

(-1,0)

Transformations:

Equation:

31. $f(x)=|x|$

(-3,0)   (-1,0)

(-2,-1)
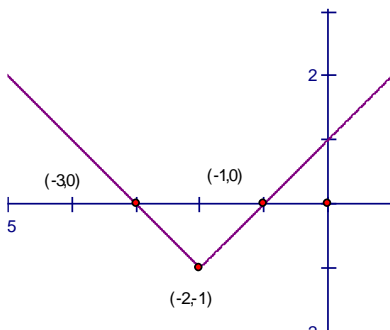
Transformations:

Equation:

32. $f(x)=\sqrt[3]{x}$

(1,3)

(0,2)

(-1, 1)

Transformations:

Equation:

33. $f(x)=x$

(0, 4)

(2, 0)

Transformations:

Equation: