

Transformations day 1

Date _____ Hour _____

Describe the transformations necessary to transform the graph of $f(x)$ into that of $g(x)$.

1) $f(x) = x^3$ Reflection across x -axis. 2) $f(x) = x^3$ Shifts right 3,
 $g(x) = -x^3 - 3$ Shifts down 3 units. $g(x) = (x-3)^3 + 3$ up 3 units.

3) $f(x) = |x|$ Reflection across x -axis 4) $f(x) = x^2$ Vertical stretch with a
 $g(x) = -|x-2|$ Shifts right 2 units. $g(x) = 2(x-3)^2$ factor of 2.
 Shifts right 3 units.

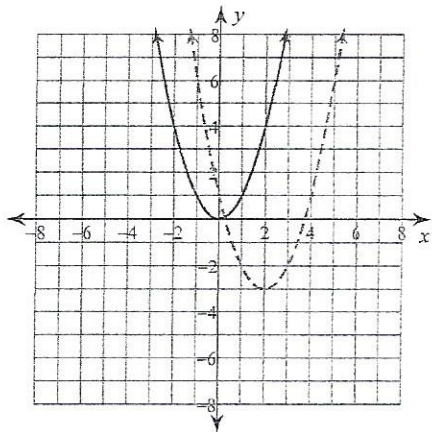
5) $f(x) = x^2$ Reflection across x -axis. 6) $f(x) = |x|$ Shifts left 2, up 2 units.
 $g(x) = -x^2 + 3$ Shifts up 3 units. $g(x) = |x+2| + 2$

7) $f(x) = \sqrt{x}$ Reflection across x -axis. 8) $f(x) = |x|$ Vertical shrink with a
 $g(x) = -\sqrt{-x}$ Reflection across y -axis. $g(x) = \frac{1}{3} \cdot |x| - 3$ factor of $\frac{1}{3}$.
 Shifts down 3 units.

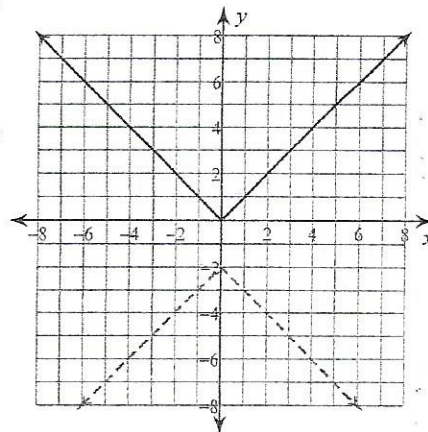
9) $f(x) = |x|$ Reflection across x -axis. 10) $f(x) = |x|$ Vertical shrink with a
 $g(x) = -|x| - 3$ Shifts down 3 units. $g(x) = \frac{1}{3} \cdot |x-1|$ factor of $\frac{1}{3}$.
 Shifts right 1 unit.

Describe the transformations necessary to transform the graph of $f(x)$ (solid line) into that of $g(x)$ (dashed line).

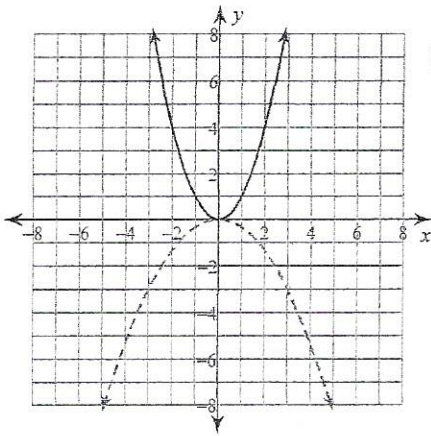
11)

Shifts right 2,
down 3 units.

12)

Shifts down
2 units.
Reflection across
 x -axis.

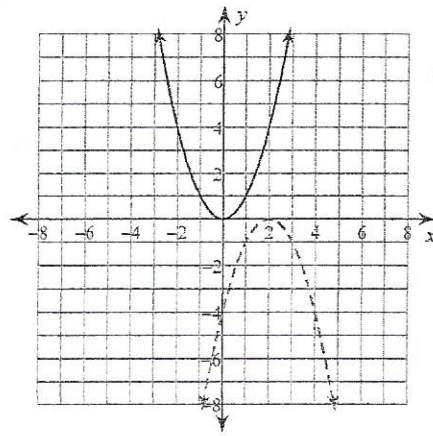
13)



Reflection across
x-axis.

Vertical Shrink
with a factor
of $\frac{1}{3}$.

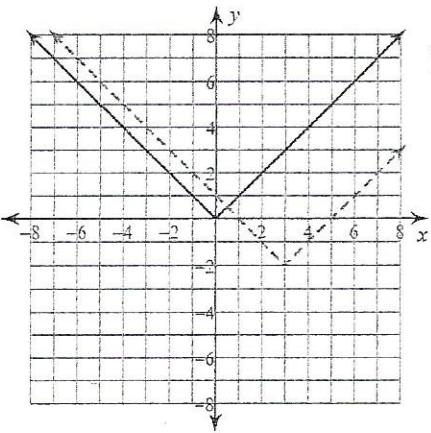
14)



Reflection
across x-axis.

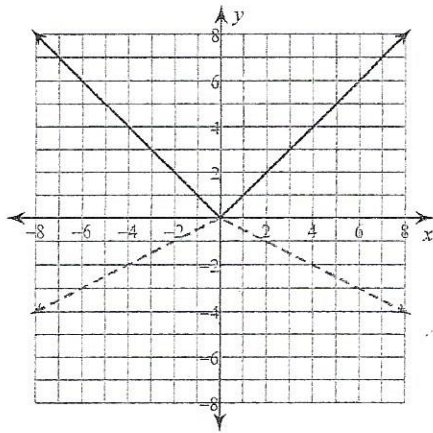
Shifts right 2
units.

15)



Shifts right 3,
down 2 units.

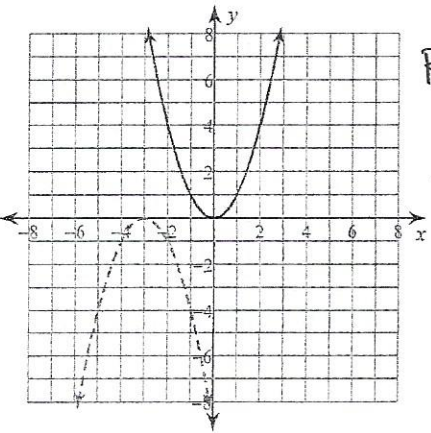
16)



Reflection across
x-axis.

Vertical Shrink
with a factor
of $\frac{1}{3}$.

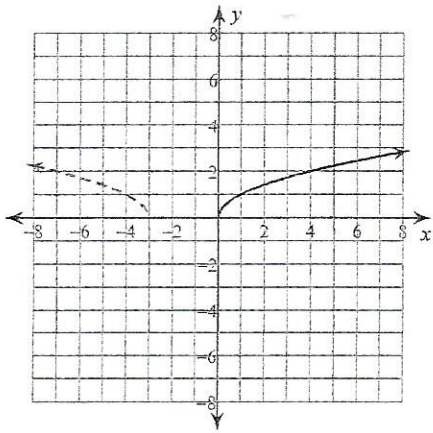
17)



Reflection across
x-axis.

Shifts left 3
units.

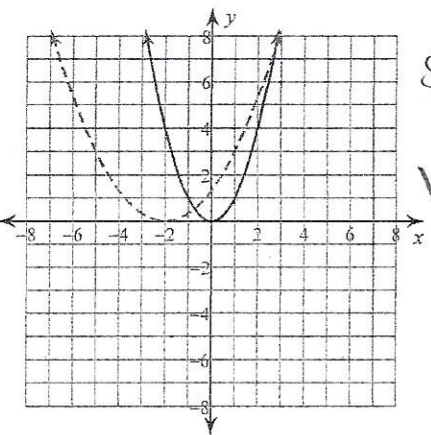
18)



Shifts left 3
units.

Reflection across
y-axis

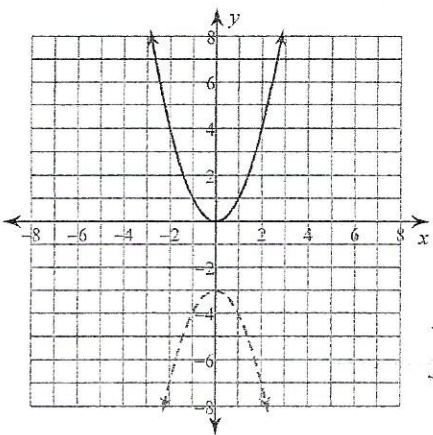
19)



Shifts left 2
units

Vertical Shrink
with a factor
of $\frac{1}{3}$

20)



Reflection across
x-axis.

Shifts down 3
units.

Simplifying Radical Review

Simplify.

$$\begin{array}{r}
 500 \\
 5 \quad 100 \\
 10 \quad 10 \\
 \cancel{5} \quad \cancel{5} \\
 \hline
 5 \quad 5
 \end{array}$$

1) $\sqrt[3]{500x^7}$

$$5 \sqrt[3]{4} x^6 x$$

$$\boxed{5x^2 \sqrt[3]{4x}}$$

2) $\sqrt{64k}$

$$\boxed{8\sqrt{k}}$$

$$\begin{array}{r}
 405 \\
 5 \quad 81 \\
 \cancel{33} \quad \cancel{33} \\
 \hline
 3 \quad 3
 \end{array}$$

3) $\sqrt[4]{405m^7n^4}$

$$3 \sqrt[4]{5} m^4 m^3 n^4$$

$$\boxed{3mn \sqrt[4]{5m^3}}$$

4) $\sqrt[3]{189b^4}$

$$3 \sqrt[3]{7}$$

$$\boxed{3b \sqrt[3]{7b}}$$

$$\begin{array}{r}
 189 \\
 9 \quad 21 \\
 \cancel{33} \quad \cancel{37} \\
 \hline
 3 \quad 3
 \end{array}$$

5) $\sqrt{100p^2}$

$$\boxed{10p}$$

6) $\sqrt{63m^3}$

$$\boxed{3m \sqrt{7m}}$$

$$\begin{array}{r}
 63 \\
 3 \quad 21 \\
 \hline
 3 \quad 7
 \end{array}$$

$$\begin{array}{r}
 24 \\
 18 \quad 3 \\
 \cancel{222} \\
 \hline
 2 \quad 2
 \end{array}$$

7) $\sqrt[3]{24x^6y^3z^5}$

$$2 \sqrt[3]{3} x^2 y z^2$$

$$\boxed{2x^2 y z \sqrt[3]{3z^2}}$$

8) $\sqrt{100x^3y}$

$$\boxed{10x \sqrt{xy}}$$