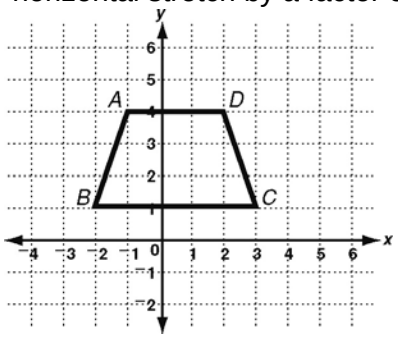
**Algebra 2H Review 1-1, 1-2, 1-3** **Name**_____

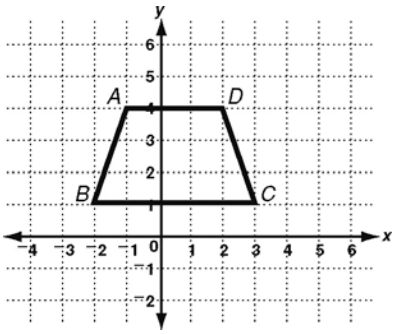
**Per.**_____ **Col.**_____ **HW#**_____

**Transform trapezoid *ABCD* as indicated. Estimate the area of each transformed trapezoid as compared to the area of trapezoid *ABCD*.**

1. horizontal stretch by a factor of 2




2. vertical stretch by a factor of $\frac{3}{2}$




**Identify the domain and range of the function, and describe the transformation from its parent function.**

3. $g(x) = -\sqrt{4x}$ domain:

range:

transformation:

4. $g(x) = \frac{1}{2}(x-2)^3$ domain:

range:

transformation:

**Sketch a graph for each situation and identify the related parent function. Then identify a reasonable domain and range for the function.**

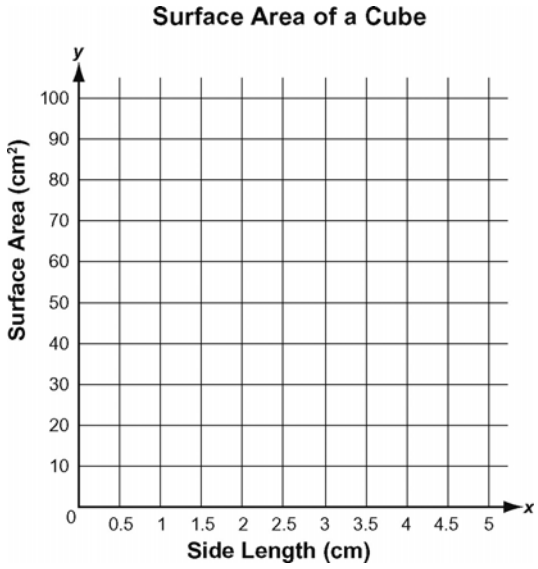
5. surface area of a cube with side length *x*

parent function:

domain:

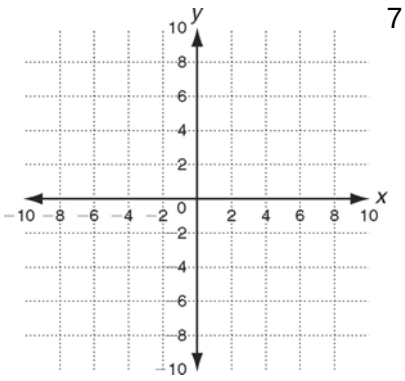
range:

| *x* | $y = 6x^2$ |
|---|---|
| 1 | |
| 2 | |
| 3 | |
| 4 | |



**Graph $f(x)$. Write the rule for g $(x)$, using the transformation given, and then graph $g(x)$.**

6.



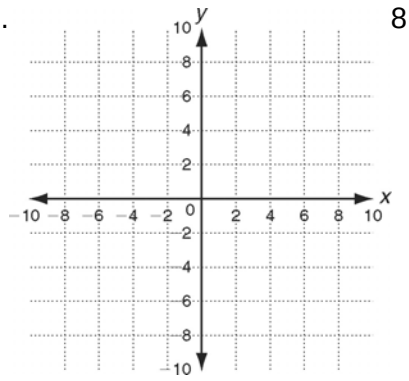
$f(x) = 3x$

horizontal translation

left 3 units

_____

7.



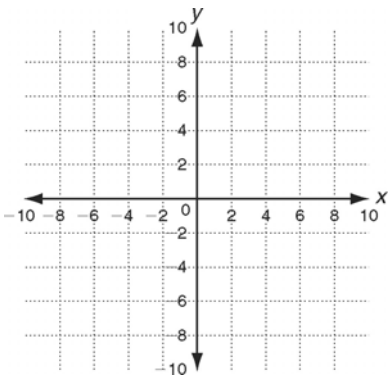
$f(x) = -x - 5$

vertical compression by

a factor of $\frac{1}{5}$

_____

8.



$f(x) = \frac{x}{3} + 2$

reflection across the

$x$-axis

_____

9. The rate of increase in a certain city's population in 2000 was 1.4%. The rate in 2001 was 1.9%.
   a. Write a function to represent the increase in population in 2000. _____
   b. Write a function to represent the increase in population in 2001. _____
   c. Describe the transformation that can be applied to the first function to get the second function.

_____

**Let $f(x) = 2x - 1$. Write the rule for $g(x)$ after the transformations.**

10. vertical translation 7 units down and horizontal translation 9 units right

11. horizontal translation 3 units left followed by a vertical stretch by a factor of 5

12. reflection across the $y$-axis followed by a vertical translation 4 units up

13. horizontal compression by a factor of $\frac{1}{3}$ followed by a reflection across the $x$-axis