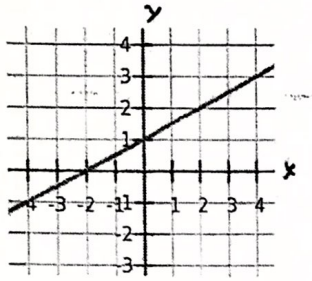
Name: Key Period: _____

Checkpoint 5D *Integrated Math 2*

Answer the questions thoroughly including any necessary math or explanations.

1) Describe the transformation from the parent function $f(x)=x$.

a)



- Shifted up 1 unit
- Slope decreased from 1 to 1/2.

b) $g(x)=4x-2$

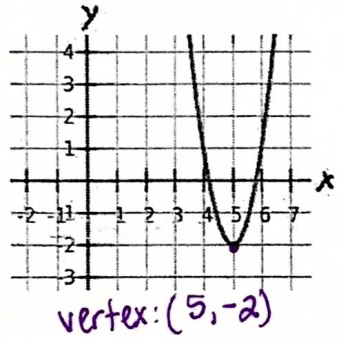
- Shifted down 2 units
- Slope increased from 1 to 4

c) $h(x)=-2(x-4)$ → $h(x)=-2x+8$

- Shifted up 8 units
- Slope decreased from 1 to -2

2) Describe the transformation from the parent function $f(x)=x^2$. What is the vertex of the transformation? vertex (0,0)

a)



vertex: (5,-2)

- shifted right 5 units
- shifted down 2 units

b) $g(x)=(x+3)^2-4$

vertex: (-3,-4)

- Shifted left 3 units
- shifted down 4 units

c) $h(x)=(x-2)^2+9$

vertex: (2,9)

- Shifted right 2 units
- Shifted up 9 units

3) Write the equation that represents the transformation from the parent function $f(x)=x^2$. What is the vertex of the transformation?

a) Shift 2 units right, shift 5 units down

$f_2(x)=(x-2)^2-5$

vertex: (2,-5)

b) Shift 3 units left, shift 4 units up

$f_2(x)=(x+3)^2+4$

vertex: (-3,4)

c) Shift 6 units down, shift 7 units left

$f_2(x)=(x+6)^2-7$

vertex: (-6,-7)

5) Describe the transformation from the parent function $f(x) = 2^x$.

a) $m(x) = 2^{(x-5)} + 3$

- shifts right 5 units
- shifts up 3 units

b) $n(x) = 2^{(x+2)} - 7$

- shifts left 2 units
- shifts down 7 units

c) $t(x) = 2^{(x-9)} - 4$

- shifts right 9 units
- shifts down 4 units

6) Describe the transformation from Function 1 to Function 2.

a) $f_1(x) = (x+4)^2 - 5$; $f_2(x) = \frac{1}{2}(x-1)^2 - 3$

vertex: (-4,-5) vertex: (1,-3)

- shifts right 5 units
- shifts up 2 units
- stretches by a factor of $\frac{1}{2}$

b) $f_1(x) = 2^{(x-1)} + 1$; $f_2(x) = 2^{(x-4)} - 3$

- shifts right 3 units
- shifts down 4 units.