Algebra 2 Trig

Transformation Recap

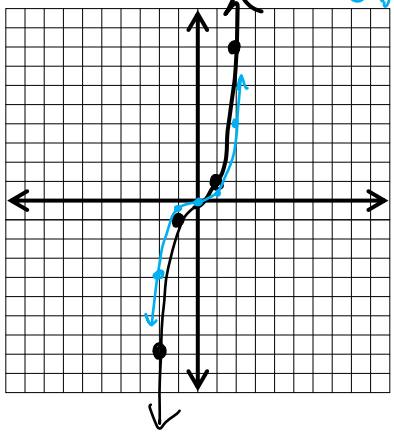
Name Key **Date**_____

Identify the parent function, and then describe how it is transformed (be specific about the direction and number of units).

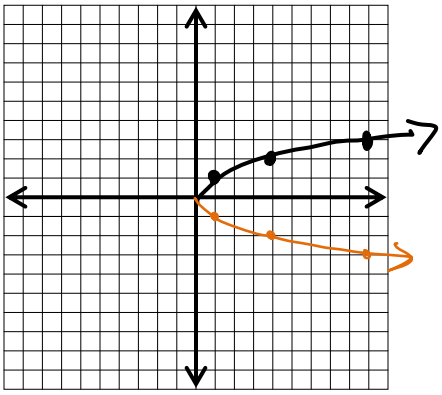
1. $y = -x^2$ — $y=x^2$ reflection over x
2. $y = 2^{2x}$ — $y=2^x$ horizontal shrink by $\frac{1}{2}$
3. $y = (x + 6)^3$ — $y=x^3$ left 6
4. $y = \sqrt{-x}$ — $y=\sqrt{x}$ reflection over y
5. $y = |3x|$ — $y=|x|$ horizontal shrink by $\frac{1}{3}$
6. $y = \sqrt{x+3}+9$ — $y=\sqrt{x}$ left 3, up 9
7. $y = (x - 3)^3$ — $y=x^3$ right 3
8. $y = -2^x$ — $y=2^x$ reflection over x
9. $y = x - 4$ — $y=x$ down 4 OR right 4 } same for lines!

Identify the parent function and graph it. Then graph the transformation.

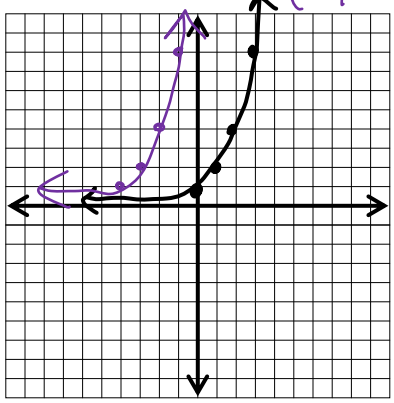
10. $y = \frac{1}{2}x^3$ — $y=x^3$ Vert. shrink by $\frac{1}{2}$ (multi. y by $\frac{1}{2}$)



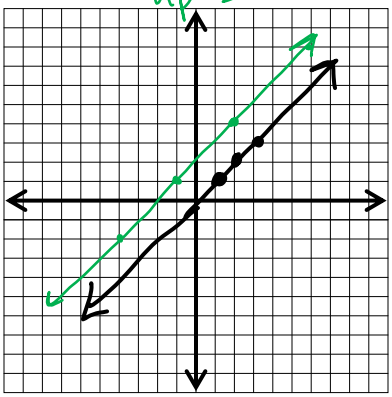
11. $y = -\sqrt{x}$ — $y=\sqrt{x}$ Reflection over x (opp. of y)



12. $y = 2^{x+4}$ — $y=2^x$ Left 4 (subtract 4 from x)

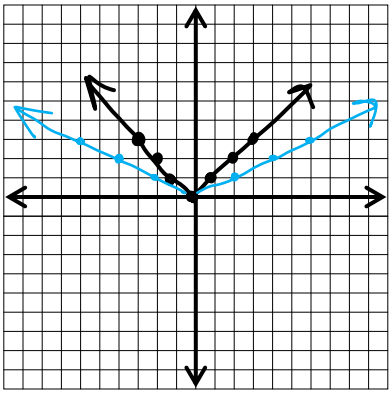


13. $y = x + 2$ — $y=x$ Left 2 OR Up 2



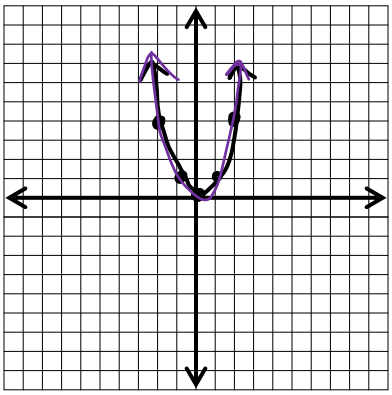
14. $y = \left|\frac{1}{2}x\right|$ Horizontal stretch by 2 (multi. x by 2)

$y = |x|$



15. $y = (-x)^2$ Reflection over y (opp. of x)

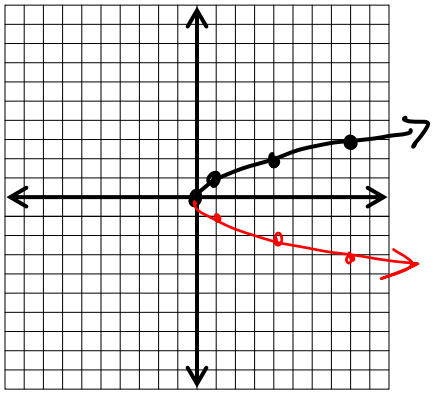
$y = x^2$



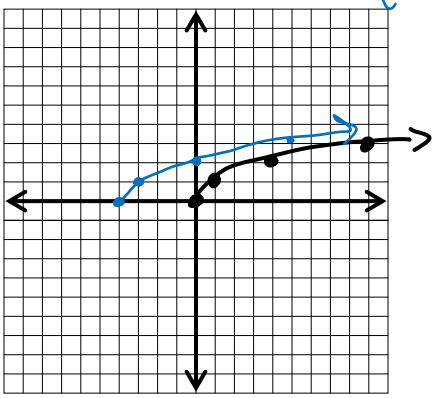
doesn't change!

Graph $y = \sqrt{x}$ on each graph below. Then, graph the transformation indicated.

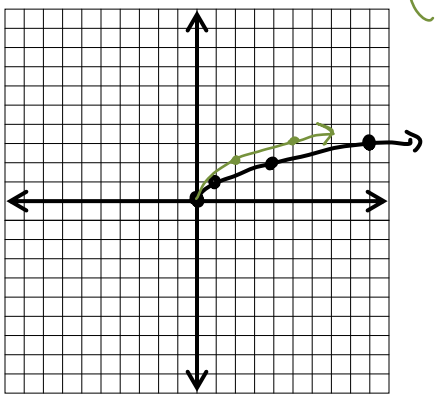
1. -f(x) Reflection over x (opp. of y)



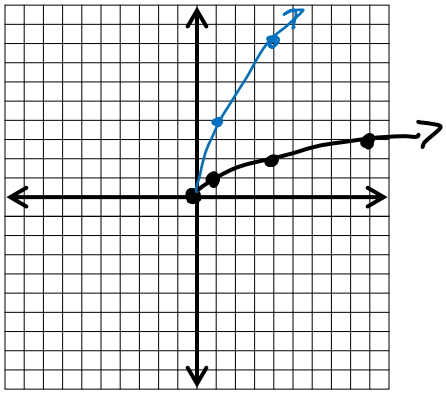
2. f(x + 4) Left 4 (subt. 4 from x)



3. f(2x) Horizontal shrink bafo $\frac{1}{2}$ (multi. x by $\frac{1}{2}$)



4. 4f(x) Vertical stretch bafo 4 (multi. y by 4)



Write an equation based on the transformation described.

1. $y = \sqrt{x}$ is reflected over the x axis

$y = -\sqrt{x}$

2. $y = x^2$ horizontal stretch b.a.f.o. 2

$y = \left(\frac{1}{2}x\right)^2$

3. $y = x^3$ is reflected across the y-axis

$y = (-x)^3$

4. y = |x| is shifted up 4 and to the right 5

$y = |x-5| + 4$

5. $y = 2^x$ vertical stretch b.a.f.o. 2

$y = 2 \cdot 2^x$

6. y = x is moved to the left 3 and down 2

$y = (x+3) - 2$

OR

$y = x + 1$