READY, SET, GO! Name _____ Period _____ Date _____

READY

Topic: Solving Proportions.

Find the value of x in each equation.

1. $\frac{2}{x} = \frac{8}{20}$

$40 = 8x$

$\frac{40}{8} = \frac{8x}{8}$

$x = 5$

2. $\frac{24}{1} = \frac{36}{x}$

$24x = 36$

$\frac{24x}{24} = \frac{36}{24}$

$x = 1.5$ or $3/2$

3. $\frac{9}{16} = \frac{6}{x}$

$9x = 96$

$x = 32/3$

4. $\frac{(x+1)}{20} = \frac{1}{2}$

$2x + 2 = 20$

$-2 \quad -2$

$\frac{2x}{2} = \frac{18}{2}$

$x = 9$

5. $\frac{35}{(2x-3)} = \frac{70}{34}$

$1190 = 140x - 210$

$+210 \quad +210$

$\frac{1400}{140} = \frac{140x}{140}$

$x = 10$

6. $\frac{10}{x} = \frac{8}{1}$

$10 = 8x$

$\frac{10}{8} = \frac{8x}{8}$

$x = 5/4$

SET

Topic: Transformations of Functions.

Given the following descriptions of transformations, write the new function of the transformed graph.

7. From the parent graph $f(x) = x^2$ the graph has been shifted 3 units to the right and 4 units up.

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

8. From the parent graph $f(x) = \sqrt{x}$ the graph has been shifted 2 units to the left and one unit down.

$f(x) = \sqrt{x+2} - 1$

9. From the parent graph $f(x) = \frac{1}{x}$ the graph has been shifted six units to the right and five units down.

$f(x) = \frac{1}{x-6} - 5$

10. From the parent graph $f(x) = x^2$ the key points of (0, 0), (1, 1), and (2, 4) are now (0, 0), (1, 0.5), and (2, 2).

$f(x) = \frac{1}{2}x^2$

11. From the parent graph $f(x) = \sqrt{x}$ to $g(x)$ given in the table below.

x	f(x)
0	0
1	1
4	2
9	3

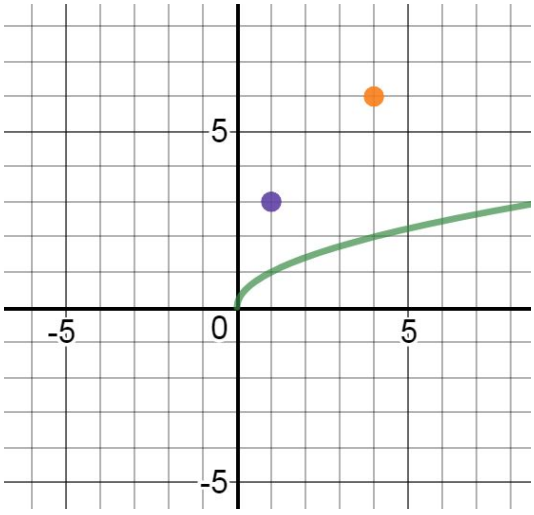
x4
x4
x4

x	g(x)
0	0
1	4
4	8
9	12

$g(x) = 4\sqrt{x}$

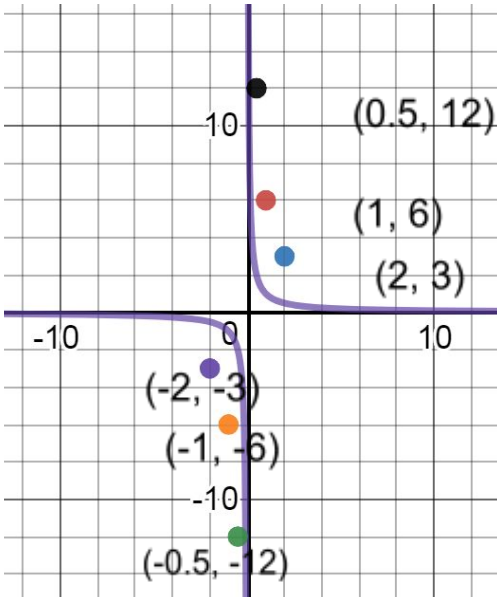
Given the following parent graphs, write the new function of the transformed graph that will go through the given ordered pairs.

12.



$y = 3\sqrt{x}$

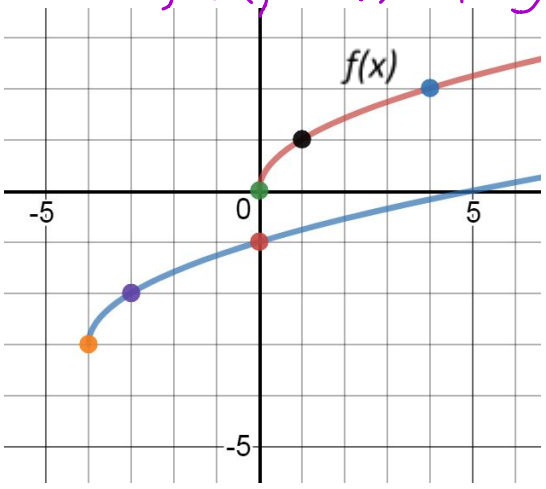
13.



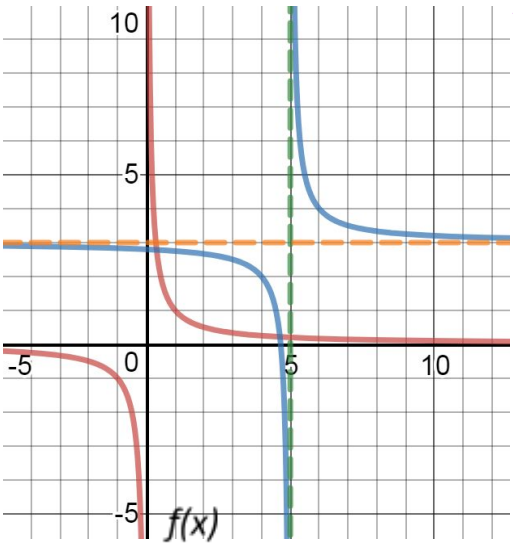
Skip

Given the following parent graphs $f(x)$, write the new function of the transformed graph that is shown.

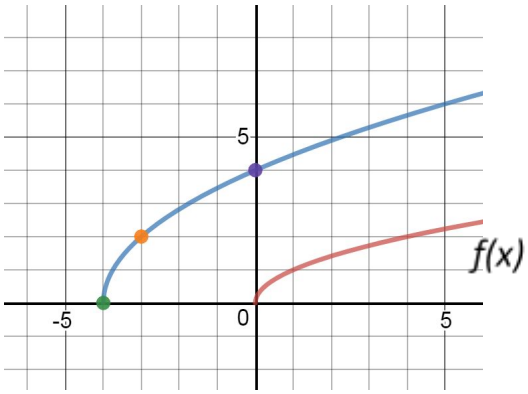
14. $f'(x) = \sqrt{x+4} - 3$



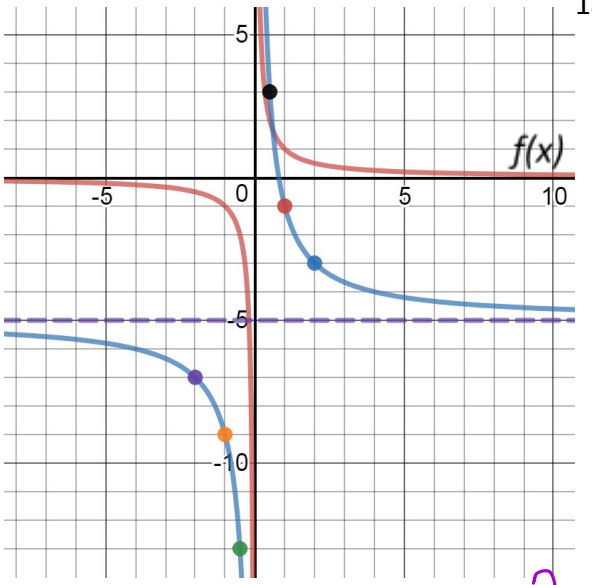
15. $f'(x) = \frac{1}{x-5} + 3$



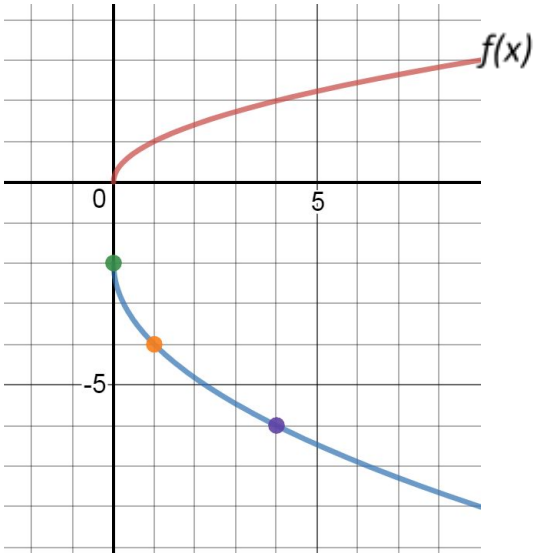
16. $f'(x) = 2\sqrt{x+4}$



17. $f'(x) = -2\sqrt{x} - 2$



18. $f'(x) = \frac{2}{x} - 5$



GO!

Topic: Different forms of a quadratic function.

19. Given the quadratic function: $y = (x-4)(x+5)$, re-write the function in standard form.

$x^2+5x-4x-20$

x^2+x-20

20. Given the quadratic function: $y = x^2 - 2x - 48$ re-write the function in factored form.

$y=(x-8)(x+6)$

21. Given the quadratic function: $y = x^2 + 16x + 71$ re-write the function in vertex form.

↳ complete the square

$x^2+16x+64 = -71+64$

$(x+8)^2 = -7$

$y=(x+8)^2+7$

22. Given the quadratic function: $y = (x+2)^2 - 4$ re-write the function in standard form.

$(x+2)(x+2)-4$

$y= x^2+4x$

23. Given the quadratic function: $y = (x-3)^2 - 4$ re-write the function in factored form.

$y=(x-3)(x-3)-4$

$y= x^2-6x+5$

$y=(x-5)(x-1)$

24. Given the quadratic function: $y = (x-5)(x-3)$ re-write the function in vertex form.

$x^2-8x+15$

$x^2-8x+16 = -15+16$

$(x-4)^2 = 1$

$y=(x-4)^2-1$