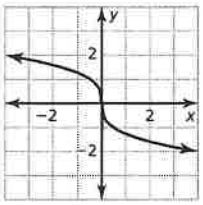
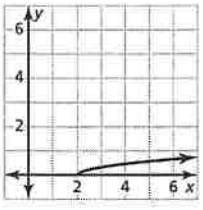
Answers

2.



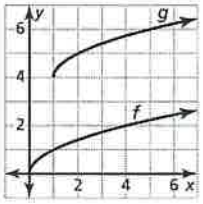
$-\infty < x < \infty; -\infty < y < \infty$

3.

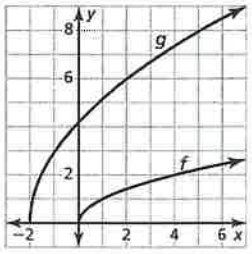


$x \geq 2; y \geq 0$

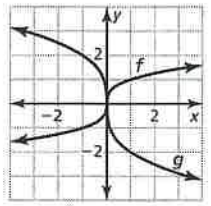
4. translation 1 unit right and 4 units up



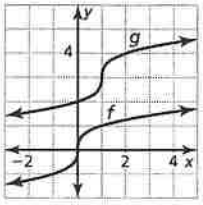
5. translation 2 units left and a vertical stretch by a factor of 3



6. vertical stretch by a factor of 2 and a reflection in the x-axis



7. translation 1 unit right and 3 units up



5.3 Enrichment and Extension

1. $(10, 53.13°)$ **2.** $(1.41, 45°)$

3. $(8.94, 26.57°)$ **4.** $(10.20, 168.69°)$

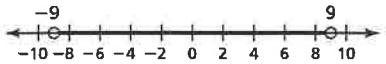
5. $(5, 233.13°)$ **6.** $(8.60, 234.46°)$

5.3 Puzzle Time

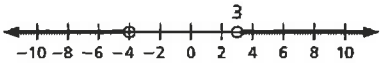
A POTATO

5.4 Cumulative Practice

1.



2.



5.4 Prerequisite Skills Practice

1. yes **2.** no

5.4 Extra Practice

1. $x = 6$ **2.** $x = \frac{25}{16}$ **3.** $x = -256$

4. $x = \frac{3}{16}$ **5.** $x = 32$ **6.** $x = 32$

7. no solution **8.** $x = 0, x = \frac{4}{3}$ **9.** $x = \frac{1}{5}$

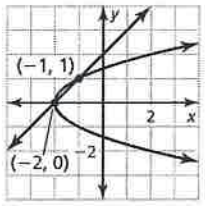
10. $x = 4$ **11.** $x = -3$ **12.** no solution

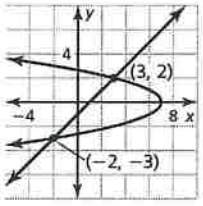
13. $x = 64$ **14.** $x = \frac{4}{3}$ **15.** $x = 2$

16. $0 \leq x \leq 25$ **17.** $x \geq 26$

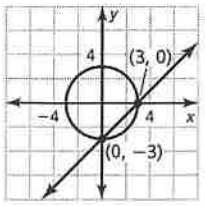
18. $x > -2$ **19.** 25 ft

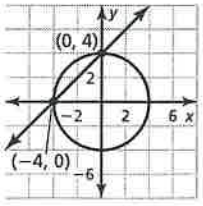
20. $(-2, 0), (-1, 1)$ **21.** $(3, 2), (-2, -3)$





22. $(0, -3), (3, 0)$ **23.** $(-4, 0), (0, 4)$





24. about 44.4 ft

Answers

5.4 Reteach

1. $x = 9$
2. $x = \frac{40}{3}$
3. $x = 54$
4. $x = 216$
5. $x = 4$
6. $x = 5$
7. $x = 16$
8. $x = 7, x = 9$
9. $x = 3$
10. $x = 0, x = -\frac{3}{2}$
11. $x = \frac{1}{3}$
12. $x = 7$
13. $x = 27$
14. no solution
15. $x = 4$
16. $x \geq 9$
17. $3 \leq x \leq 52$
18. $x > 5$

5.4 Enrichment and Extension

1. $x = -21$
2. $x = 3$
3. $x \approx 23.39$
4. $x \approx -2.87$
5. $x \geq 19$
6. $0 \leq x \leq 1.33$

5.4 Puzzle Time

WELL THIS IS A FINE PICKLE YOU'VE GOTTEN US INTO

5.5 Cumulative Practice

1. $y = (x - 3)^2 - 5$; $(3, -5)$
2. $y = (x - 7)^2 - 4$; $(7, -4)$

5.5 Prerequisite Skills Practice

1. $3x^4 + 6x^2$
2. $\frac{x^2}{x - 1}$

5.5 Extra Practice

1. $(f + g)(x) = -8\sqrt[3]{4x}$; $-\infty < x < \infty$;
   $(f - g)(x) = 10\sqrt[3]{4x}$; $-\infty < x < \infty$;
   $(f + g)(-2) = 16$; $(f - g)(-2) = -20$
2. $(f + g)(x) = -x^3 + x^2 - x$; $-\infty < x < \infty$;
   $(f - g)(x) = -x^3 - 11x^2 + 7x$; $-\infty < x < \infty$;
   $(f + g)(-1) = 3$; $(f - g)(-1) = -17$
3. $(fg)(x) = 3x^3\sqrt[3]{x^2}$; $-\infty < x < \infty$;
   $\left(\frac{f}{g}\right)(x) = 3x^2\sqrt[3]{x}$; $-\infty < x < 0, 0 < x < \infty$;
   $(fg)(-8) = -6144$; $\left(\frac{f}{g}\right)(-8) = -384$
4. $(fg)(x) = 15x^{9/4}$; $x \geq 0$; $\left(\frac{f}{g}\right)(x) = \frac{3}{5}x^{7/4}$;
   $x > 0$; $(fg)(16) = 7680$; $\left(\frac{f}{g}\right)(16) = \frac{384}{5}$
5. $(fg)(x) = 20x^{7/6}$; $x \geq 0$; $\left(\frac{f}{g}\right)(x) = 5x^{1/2}$;
   $x > 0$; $(fg)(64) = 2560$; $\left(\frac{f}{g}\right)(64) = 40$
6. $(f + g)(5) = 3.81$; $(f - g)(5) = -14.07$;
   $(fg)(5) = -45.88$; $\left(\frac{f}{g}\right)(5) = -0.57$
7. $(f + g)(5) = 26.77$; $(f - g)(5) = 13.35$;
   $(fg)(5) = 134.58$; $\left(\frac{f}{g}\right)(5) = 2.99$
8. $g(0)$ is equal to 0, and 0 cannot be in the denominator of a fraction.
   $f(x) = 4x^{7/3}$ and $g(x) = 2x^{2/3}$
   The domain of $\left(\frac{f}{g}\right)(x)$ is all real numbers except $x = 0$.
9. $(f + g)(5) = -5$, $(f - g)(0) = -46$,
   $(fg)(3) = 24$, and $\left(\frac{f}{g}\right)(2) = \frac{1}{2}$

5.5 Reteach

1. $(f + g)(x) = 12\sqrt[4]{x}$; $x \geq 0$;
   $(f - g)(x) = -18\sqrt[4]{x}$; $x \geq 0$;
   $(f + g)(81) = 36$; $(f - g)(81) = -54$
2. $(f + g)(x) = 3x^2 + 6x + 7$; $-\infty < x < \infty$;
   $(f - g)(x) = x^2 + 12x - 7$; $-\infty < x < \infty$;
   $(f + g)(1) = 16$; $(f - g)(1) = 6$