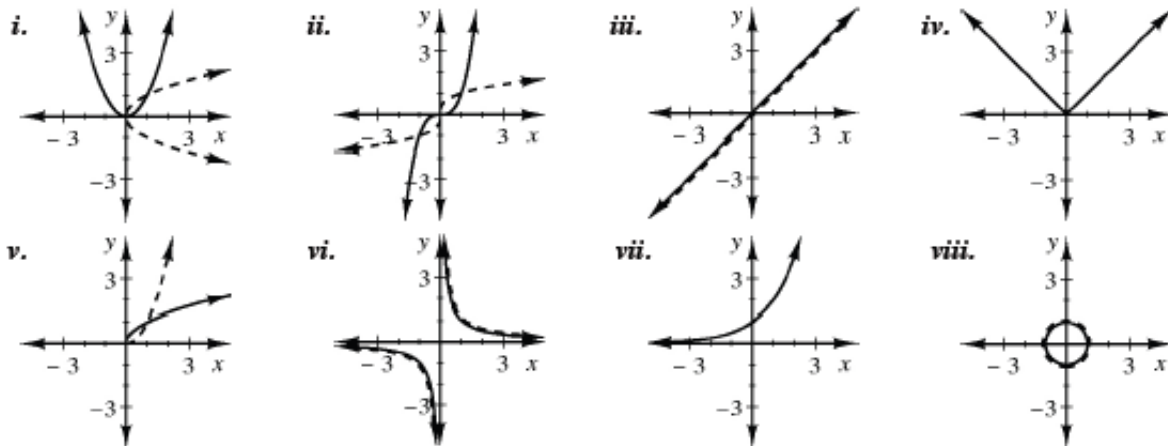


Lesson 5.2.1

5-55. See below:

- a. (i) $y = \pm\sqrt{x}$, (ii): $y = \sqrt[3]{x}$, (iii): $y = x$, (iv): there is no inverse equation, (v): $y = x^2$ for $x \geq 0$, (vi): $y = \frac{1}{x}$, (vii): no inverse equation yet, (viii): $y = \pm\sqrt{-x^2 + 1}$



- b. There are three: $y = x$, $y = \frac{1}{x}$ and $x^2 + y = 1$. This can be seen in the graphs but justified by switching x and y and rewriting

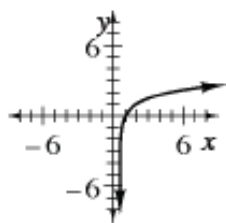
- c. There are three: $y = x^2$, $y = |x|$ and $x^2 + y^2 = 1$

5-56. See below:

- a. See sample table below.

x	$\frac{1}{9}$	$\frac{1}{3}$	1	3	9
y	-2	-3	0	1	2

- b. See graph below.



- c. $x = 3^y$ or $y =$ the exponent of 3 to get x .
- d. 4. It's the exponent you have to use with 3 to get 81.

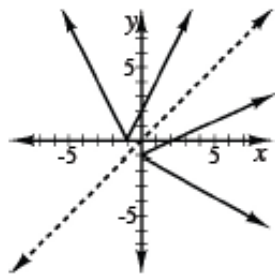
5-57. See below:

- a. 4
- b. 5
- c. 10
- d. 125
- e. 3
- f. 0.5

5-58. $y = \log_3 x$

5-59. See below:

- a. $x = 2|y+1|$; see graph below



- b. Answers vary.



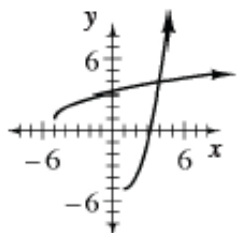
5-60. Domain: $x > 0$; Range: $-\infty < y < \infty$; x -intercept: $(1, 0)$; no y -intercept; asymptote at $x = 0$.

5-61. See below:

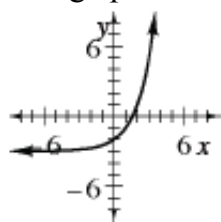
- a. undefined
- b. $x \neq 7$
- c. $g(x) = 11$
- d. $f(g(x)) = -\frac{1}{2}$

5-62. See below:

- $e(x) = (x - 1)^2 - 5$
- One machine undoes the other so $e(f(-4)) = -4$
- They would be reflections of each other across the line $y = x$.
- See graph below.



5-63. See graph below.



- Domain: all real numbers, range $y > -3$
- No
- $(0, -2), (1.585, 0)$
- Sample: $y + a = 2^x$ where $a \leq 0$

5-64. See below:

- $x = 36.78$
- $x = 31.43$

5-65. See below:

- $B = 0.07(0.3x)$ or $B = 0.021x$
- $S = 0.09(0.7)x$ or $S = 0.063x$
- $0.084x = 5000$; \$59,523.81

5-66. See below:

- $(x + 7)(x - 7)$
- $6x(x + 8)$

c. $(x - 9)(x + 8)$

d. $2x(x + 2)(x - 2)$

5-67. The region between the two parabolas, see graph below.

