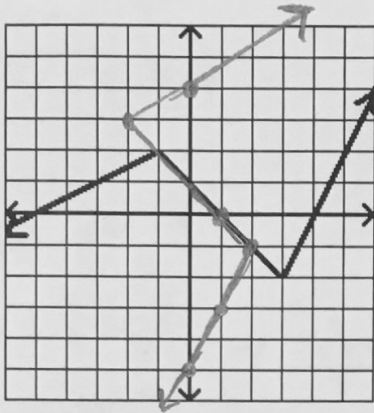


Inverse Functions More Practice

Name Key
 Period _____ Date _____

A. Use the graph of f to sketch the graph of f^{-1} . State the domain and range.

1.



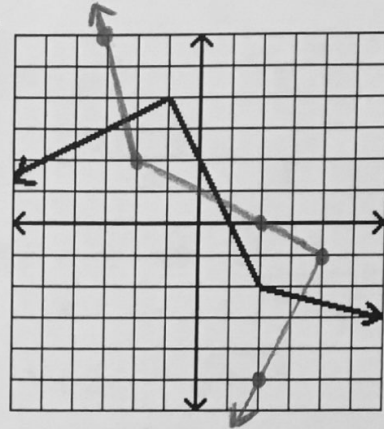
State the domain and range for f

D: $(-\infty, \infty)$ R: $(-\infty, \infty)$

State the domain and range for f^{-1}

D: $(-\infty, \infty)$ R: $(-\infty, \infty)$

2.



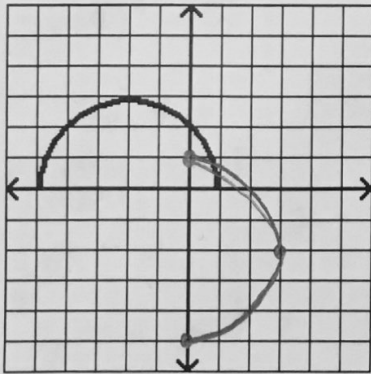
State the domain and range for f

D: $(-\infty, \infty)$ R: $(-\infty, \infty)$

State the domain and range for f^{-1}

D: $(-\infty, \infty)$ R: $(-\infty, \infty)$

3.



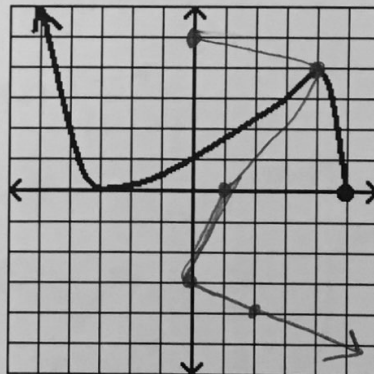
State the domain and range for f

D: $[-5, 1]$ R: $[0, 3]$

State the domain and range for f^{-1}

D: $[0, 3]$ R: $[-5, 1]$

4.



State the domain and range for f

D: $(-\infty, 5]$ R: $[0, \infty)$

State the domain and range for f^{-1}

D: $[0, \infty)$ R: $(-\infty, 5]$

B. Find the inverse of each function.

$$5. f(x) = \frac{4-x^2}{7}$$

$$x = \frac{4-y^2}{7}$$

$$7x = 4-y^2$$

$$\sqrt{-7x+4} = y$$

$$7. h(x) = \sqrt[3]{\frac{2x-4}{5}}$$

$$x = \sqrt[3]{\frac{2y-4}{5}}$$

$$x^3 = \frac{2y-4}{5}$$

$$5x^3 = 2y-4$$

$$\frac{5x^3+4}{2} = y$$

$$9. k(x) = \frac{\sqrt[3]{5x-9}}{2}$$

$$x = \frac{\sqrt[3]{5y-9}}{2}$$

$$2x = \sqrt[3]{5y-9}$$

$$2x+9 = \sqrt[3]{5y}$$

$$(2x+9)^3 = 5y$$

$$\frac{(2x+9)^3}{5} = y$$

$$11. n(x) = \frac{3}{2x-7}$$

$$(2y-7)x = \frac{3}{2y-7} \cdot (2y-7)$$

$$(2y-7)x = \frac{3}{x}$$

$$2y-7 = \frac{3}{x}$$

$$2y = \frac{3}{x} + 7$$

$$y = \frac{\frac{3}{x} + 7}{2}$$

$$13. q(x) = \frac{3}{(x-2)^4} - 5$$

$$x = \frac{3}{(y-2)^4} - 5$$

$$(y-2)^4 x + 5 = \frac{3}{(y-2)^4} (y-2)^4$$

$$\frac{(y-2)^4 (x+5)}{x+5} = \frac{3}{x+5}$$

$$(y-2)^4 = \frac{3}{x+5}$$

$$y-2 = \sqrt[4]{\frac{3}{x+5}}$$

$$y = \sqrt[4]{\frac{3}{x+5}} + 2$$

$$6. g(x) = 6 - \frac{3x}{5}$$

$$x = 6 - \frac{3y}{5}$$

$$5(x-6) = -3y$$

$$-\frac{5(x-6)}{3} = y$$

$$8. j(x) = -2 + \sqrt{9-x^2}$$

$$x = -2 + \sqrt{9-y^2}$$

$$x+2 = \sqrt{9-y^2}$$

$$(x+2)^2 = 9-y^2$$

$$(x+2)^2 - 9 = -y^2$$

$$-(x+2)^2 + 9 = y^2$$

$$\sqrt{-(x+2)^2 + 9} = y$$

$$10. m(x) = \frac{x^4+5}{10}$$

$$x = \sqrt[4]{\frac{y^4+5}{10}}$$

$$10x-5 = y^4$$

$$\sqrt[4]{10x-5} = y$$

$$12. p(x) = \frac{4}{(5-x)^3}$$

$$(5-y)^3 \cdot x = \frac{4}{(5-y)^3} \cdot (5-y)^3$$

$$\frac{(5-y)^3 (x)}{x} = \frac{4}{x}$$

$$(5-y)^3 = \frac{4}{x}$$

$$5-y = \sqrt[3]{\frac{4}{x}}$$

$$-y = \sqrt[3]{\frac{4}{x}} - 5$$

$$y = -\sqrt[3]{\frac{4}{x}} + 5$$

$$14. r(x) = \left(\frac{5}{2\sqrt{3x-5}}\right)^3 + 1$$

$$x = \left(\frac{5}{2\sqrt{3y-5}}\right)^3 + 1$$

$$x-1 = \left(\frac{5}{2\sqrt{3y-5}}\right)^3$$

$$\sqrt[3]{x-1} = \frac{5}{2\sqrt{3y-5}}$$

$$2\sqrt{3y-5} = \frac{5}{\sqrt[3]{x-1}}$$

$$\sqrt{3y-5} = \frac{5}{2\sqrt[3]{x-1}}$$

$$3y-5 = \left(\frac{5}{2\sqrt[3]{x-1}}\right)^2$$

$$y = \frac{\left(\frac{5}{2\sqrt[3]{x-1}}\right)^2 + 5}{3}$$