Study Guide and Review - Chapter 6

Choose a word or term that best completes each statement.

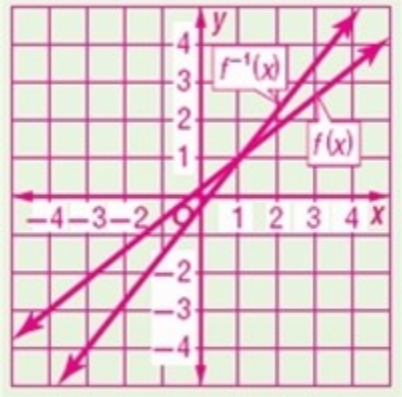
7. Two relations are_____ if and only if one relation contains the element (*b, a*) when the other relation contains the element (*a, b*).

ANSWER:
inverse relations

Find the inverse of each function. Then graph the function and its inverse.

20. $f(x) = \frac{4x+1}{5}$

ANSWER:
$f^{-1}(x) = \frac{5x-1}{4}$



23. **SHOPPING** Samuel bought a computer. The sales tax rate was 6% of the sale price, and he paid $50 for shipping. Find the sale price if Samuel paid a total of $1322.

ANSWER:
$1200

Use the horizontal line test to determine whether the inverse of each function is also a function.

26. $g(x) = -3x^4 + 2x - 1$

ANSWER:
No

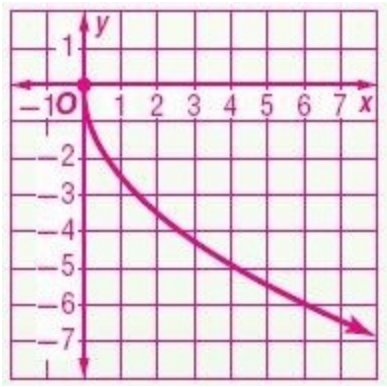
27. $g(x) = 4x^3 - 5x$

ANSWER:
No

Graph each function. State the domain and range.

32. $f(x) = -\sqrt{6x}$

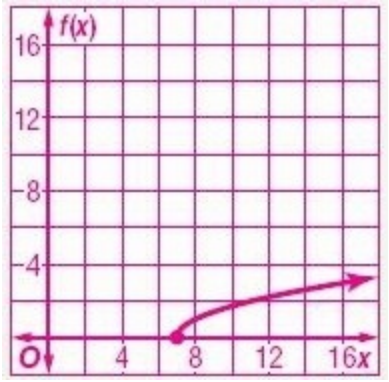
ANSWER:



$D = \{x \mid x \geq 0\}; R = \{f(x) \mid f(x) \leq 0\}$

33. $f(x) = \sqrt{x-7}$

ANSWER:



$D = \{x \mid x \geq 7\}; R = \{f(x) \mid f(x) \geq 0\}$

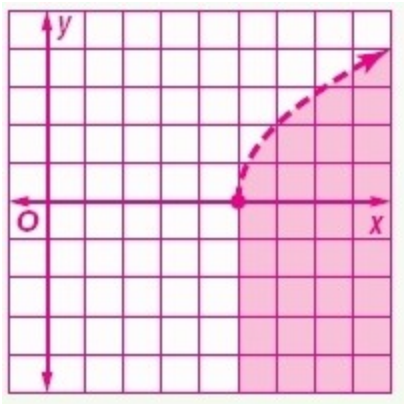
37. **GEOMETRY** The area of a circle is given by the formula $A = \pi r^2$. What is the radius of a circle with an area of 300 square inches?

ANSWER:
about 9.8 in.

Graph each inequality.

40. $y < 2\sqrt{x-5}$

ANSWER:



Simplify.

44. $\sqrt{-(x+3)^4}$

ANSWER:
$i(x+3)^2$

47. $\sqrt[4]{a^8 b^{12}}$

ANSWER:
$a^2 \mid b^3 \mid$

48. $\sqrt[5]{243x^{10}y^{25}}$

ANSWER:
$3x^2y^5$

Simplify.

51. $\sqrt{144a^3b^5}$

ANSWER:
$12ab^2\sqrt{ab}$

53. $6\sqrt{72} + 7\sqrt{98} - \sqrt{50}$

ANSWER:
$80\sqrt{2}$

56. $\frac{3}{5+\sqrt{2}}$

ANSWER:

$\frac{15-3\sqrt{2}}{23}$