

## Rational/ Radical Functions Test

### Progress Assessment

Circle the letter of the best answer.

1. Which simplified rational expression is equivalent to  $\frac{4}{3+x} + \frac{2}{x-5}$ ?

a.  $\frac{6x-14}{x^2-2x-15}$

c.  $\frac{6}{x^2-2x-15}$

b.  $\frac{6x+26}{x^2+8x+15}$

d.  $\frac{6x+14}{x^2-2x-15}$

2. Which simplified rational expression is equivalent to  $\frac{x}{x+1} \bullet 3x$ ?

a.  $3x$

c.  $\frac{3}{2x+1}$

b.  $\frac{3x^2}{x^2+2x+1}$

d.  $\frac{3x^2}{x+1}$

3. Which simplified rational expression is equivalent to  $\frac{3x+1}{2x} - \frac{x-1}{x^2}$ ?

a.  $\frac{3x^2+x-2}{2x^2}$

c.  $\frac{3+(x+2)}{2}$

b.  $\frac{3x^2-x+2}{2x^2}$

d.  $\frac{2x}{x^2}$

4. Which simplified rational expression is equivalent to  $\frac{x^2-4}{x+1} \div \frac{x+2}{x}$ ?

a.  $\frac{x^2-2x}{x+1}$

c.  $\frac{x^3+2x^2-4x-8}{x^2+x}$

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

d.  $\frac{x}{x+1}$

5. What is the solution to the equation  $\frac{x}{3} - \frac{x+2}{4} = 1$ ?

a.  $x = -\frac{1}{2}$

c.  $x = -1$

b.  $x = 18$

d.  $x = 7$

6 Which simplified rational expression is equivalent to  $\frac{x^2-11x+24}{3x+9} \div \frac{2x-16}{x+3}$ ?

a.  $\frac{x-3}{2}$

c.  $\frac{24-11x+x^2}{6x-48}$

b.  $\frac{x-3}{6}$

d.  $\frac{x^2-9x-40}{3x+9}$

7 What is the solution to the equation  $\frac{x}{x+1} + \frac{5}{x-1} = 1$ ?

a.  $x = 5$

c.  $x = -\frac{3}{2}$

b.  $x = 2$

d.  $x = -2$

8 What are the vertical asymptotes for the rational function  $f(x) = \frac{x^2+x}{x^2-x-2}$ ?

a.  $x = -1, x = 1,$  and  $x = 2$

c.  $x = 0$  and  $x = 2$

b.  $x = 0$  and  $x = -1$

d.  $x = -1$  and  $x = 2$

9 What is the horizontal asymptote of the function  $f(x) = -\frac{4x+1}{x-1}$ ?

a.  $x = -4$

c.  $y = 1$

b.  $x = 1$

d.  $y = -4$

10 Which function has a vertical asymptote at  $x = 2$ ?

a.  $f(x) = \frac{3x^2}{2x-4}$

b.  $f(x) = \frac{4x-8}{2x}$

c.  $f(x) = \frac{6x}{3x+4}$

d.  $f(x) = \frac{x^2+2}{10x-5}$

11.

What is the solution to the equation  $\sqrt{x}+3=12$ ?

- a.  $x = 3$
- b.  $x = 141$
- c.  $x = 9$
- d.  $x = 81$

12.

What is the solution to the equation  $\sqrt{x}+2=9$ ?

- a.  $x = 121$
- b.  $x = 79$
- c.  $x = 77$
- d.  $x = 49$

13.

What is the solution to the equation  $\sqrt{2x-1}=x-2$ ?

- a.  $x = -1$
- b.  $x = 3$
- c.  $x = 5$
- d.  $x = 1\frac{1}{2}$

14.

What is the solution to the equation  $x+1=\sqrt{4x+9}$ ?

- a.  $x = -4$
- b.  $x = 2$
- c.  $x = 16$
- d.  $x = 4$

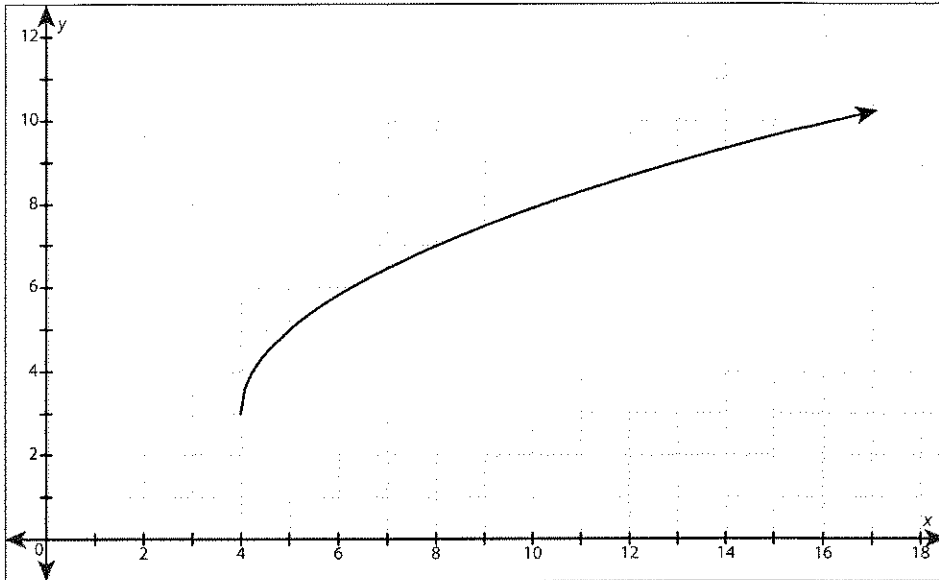
15.

What is the solution to  $\sqrt{2x}-4=7$ ?

- a.  $x = 60.5$
- b.  $x = -30.5$
- c.  $x = 5$  and  $x = 60$
- d.  $x = 0$  and  $x = 15$

16.

What is the domain of the graph?



- a.  $[3, \infty)$
- b.  $[-4, \infty)$
- c.  $[4, \infty)$
- d.  $[-3, \infty)$

17.

What is the domain of the function  $f(x) = 1.2\sqrt{x}$ ?

- a.  $(0, \infty)$
- b.  $[0, \infty)$
- c.  $(\infty, \infty)$
- d.  $[0, 5)$

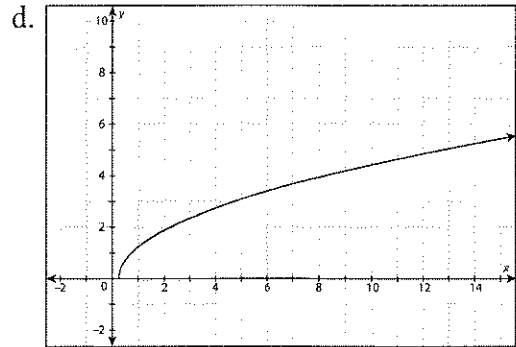
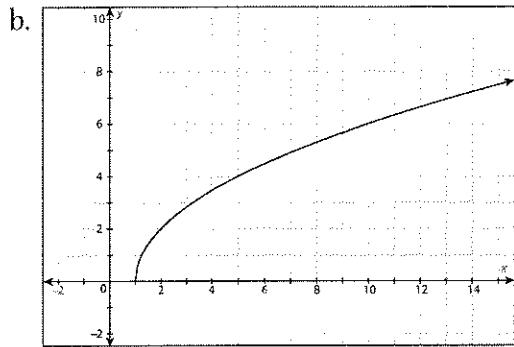
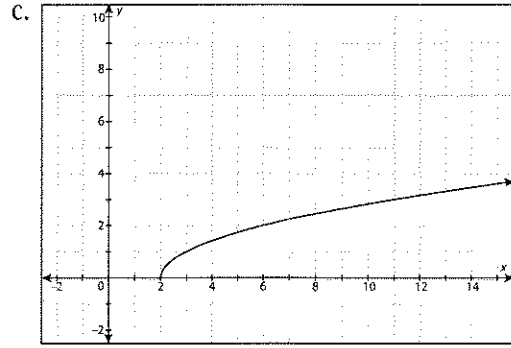
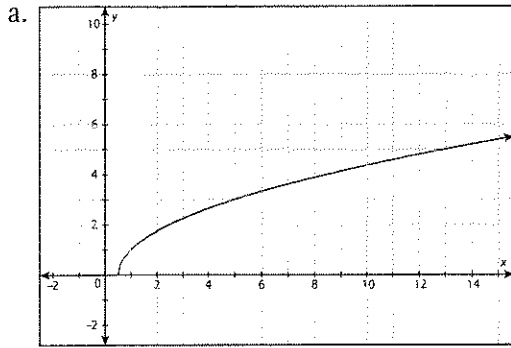
18.

What is the domain of the function  $f(x) = \sqrt{x+4} - 3$ ?

- a.  $[-3, \infty)$
- b.  $[-4, \infty)$
- c.  $[-4, -3)$
- d.  $(-4, \infty)$

19.

What is the graph of  $f(x) = \sqrt{2x-1}$ ?



20.

What is the graph of  $f(x) = \sqrt[3]{m+13}$ ?

