

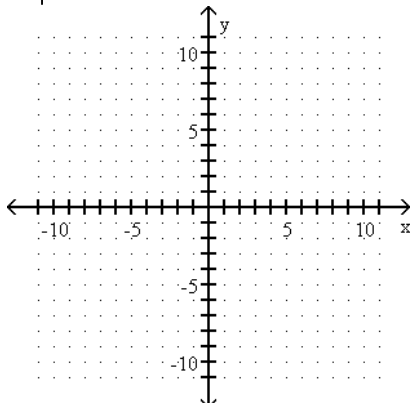
MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Identify the domain and then graph the function.

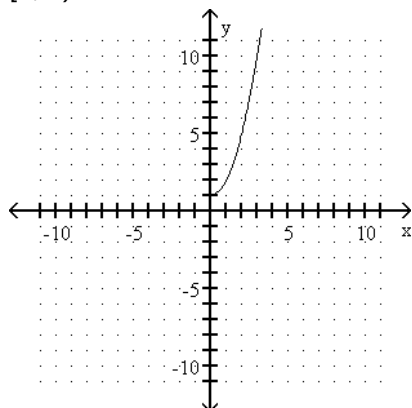
1)  $f(x) = \sqrt{x - 1}$ ; use the following table.

1) \_\_\_\_\_

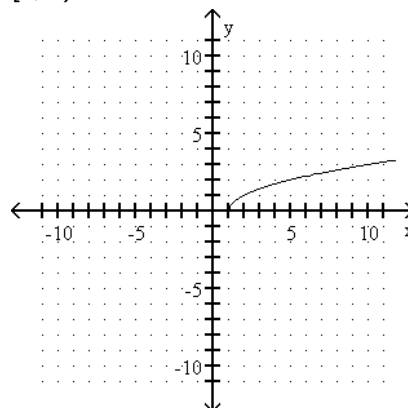
| x | f(x) |
|---|------|
| 1 |      |
| 2 |      |
| 5 |      |



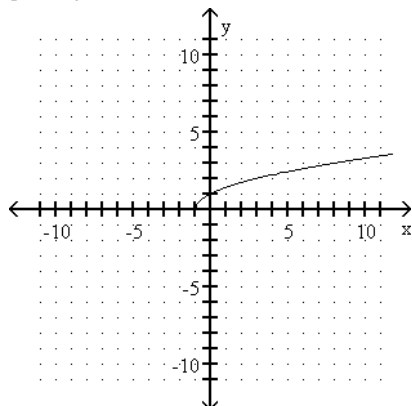
A)  $[0, \infty)$



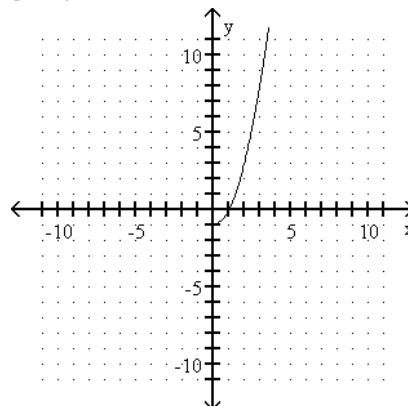
B)  $[1, \infty)$



C)  $[-1, \infty)$

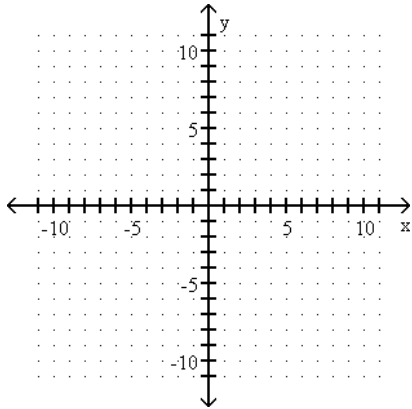


D)  $[0, \infty)$

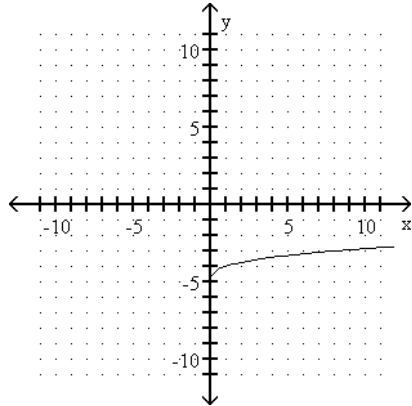


2)  $f(x) = \sqrt[3]{x} - 5$

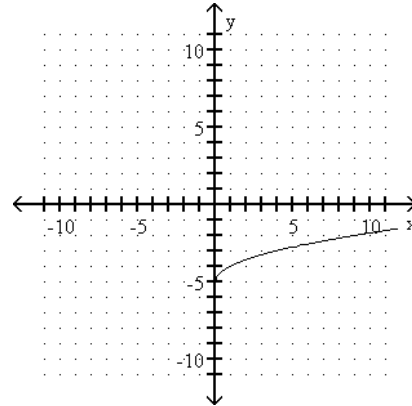
2) \_\_\_\_\_



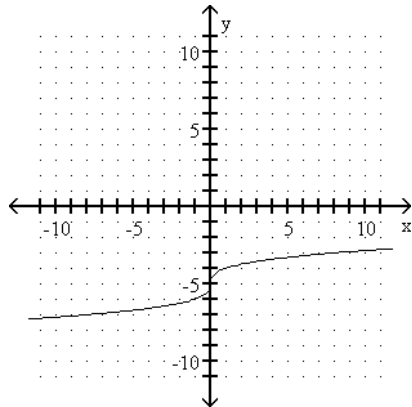
A)  $[0, \infty)$



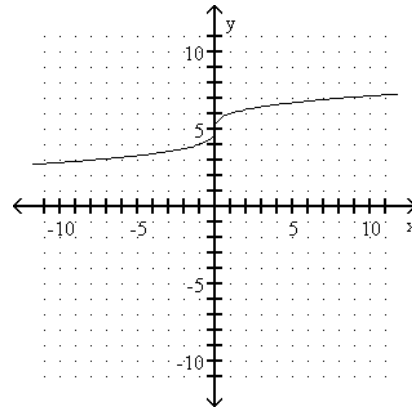
B)  $[0, \infty)$



C)  $(-\infty, \infty)$



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



Use rational exponents to simplify the following.

3)  $\sqrt[6]{729x^2}$

A)  $3x^3$

B)  $729x^{1/3}$

C)  $3x^{1/3}$

D)  $3x^{1/6}$

3) \_\_\_\_\_

4)  $\sqrt[20]{y^{28}z^{25}}$

A)  $y^{7/5}z^{5/4}$

B)  $y^{7/5}z^{4/5}$

C)  $y^{5/7}z^{5/4}$

D)  $y^{5/7}z^{4/5}$

4) \_\_\_\_\_

Add or subtract. Assume all variables represent positive real numbers.

5)  $\sqrt{100} + \sqrt{605} + \sqrt{16} + \sqrt{45}$

A)  $14\sqrt{5} + 14$

C)  $14\sqrt{5} + \sqrt{100} + \sqrt{16}$

B)  $130\sqrt{5} + 14$

D)  $\sqrt{605} + \sqrt{45} + 14$

5) \_\_\_\_\_

6)  $\sqrt{6} + 4\sqrt{24} - 2\sqrt{294}$

A)  $2\sqrt{324}$

B)  $2\sqrt{6}$

C)  $-5\sqrt{324}$

D)  $-5\sqrt{6}$

6) \_\_\_\_\_

7)  $\sqrt{2x^2} - 2\sqrt{50x^2} - 5\sqrt{50x^2}$

A)  $-7x\sqrt{2}$

B)  $-34x\sqrt{2}$

C)  $-7x\sqrt{18}$

D)  $-34x\sqrt{18}$

7) \_\_\_\_\_

Multiply, and then simplify if possible. Assume all variables represent positive real numbers.

8)  $(\sqrt{5} + \sqrt{11})(\sqrt{5} - \sqrt{11})$

A) -6

B)  $5 - 2\sqrt{5}$

C) 16

D)  $5 - 2\sqrt{11}$

8) \_\_\_\_\_

9)  $(\sqrt{33} - \sqrt{363})(\sqrt{11} + \sqrt{3})$

A)  $11\sqrt{3} + 3\sqrt{11} + 11\sqrt{33} + 33$

C)  $11\sqrt{3} + 3\sqrt{11} - 11\sqrt{33} + 33$

B)  $11\sqrt{3} - 3\sqrt{11} + 11\sqrt{33} + 33$

D)  $11\sqrt{3} + 3\sqrt{11} - 11\sqrt{33} - 33$

9) \_\_\_\_\_

10)  $(5\sqrt{3} + 4)(8\sqrt{3} + 9)$

A)  $76\sqrt{3} + 45$

C)  $156 + 77\sqrt{3}$

B)  $121\sqrt{3}$

D)  $36 + 40\sqrt{3^2} + 45\sqrt{3}$

10) \_\_\_\_\_

11)  $(\sqrt{11} - \sqrt{5})^2$

A)  $55 - 2\sqrt{55}$

B)  $16 - 2\sqrt{55}$

C)  $6 - 2\sqrt{55}$

D)  $16 + 2\sqrt{55}$

11) \_\_\_\_\_

Use rational exponents to write as a single radical expression.

12)  $\sqrt[4]{2} \cdot \sqrt[3]{x}$

A)  $\sqrt[4]{2x}$

B)  $\sqrt[12]{2x^4}$

C)  $\sqrt[12]{8x^4}$

D)  $\sqrt[12]{2x}$

12) \_\_\_\_\_

Find the distance between the pair of points.

13) (-5, -1) and (7, -5)

A)  $4\sqrt{10}$  units

B) 16 units

C) 128 units

D)  $128\sqrt{2}$  units

13) \_\_\_\_\_

14)  $(2\sqrt{11}, 1)$  and  $(3\sqrt{11}, 6)$

A)  $\sqrt{6}$  units

B) 6 units

C) 36 units

D) 5 units

14) \_\_\_\_\_

Use rational exponents to write as a single radical expression.

15)  $\frac{\sqrt[5]{y}}{\sqrt[6]{y}}$

A) y

B)  $\sqrt[6]{y^5}$

C)  $\frac{1}{\sqrt[6]{y}}$

D)  $\sqrt[30]{y}$

15) \_\_\_\_\_

Rationalize the denominator and simplify. Assume that all variables represent positive real numbers.

16)  $\sqrt[3]{\frac{5}{9}}$  16) \_\_\_\_\_

A)  $\frac{\sqrt[3]{45}}{9}$  B)  $\frac{\sqrt[3]{15}}{3}$  C)  $\frac{\sqrt[3]{405}}{9}$  D)  $\frac{\sqrt[3]{405}}{81}$

17)  $\sqrt{\frac{144}{x}}$  17) \_\_\_\_\_

A)  $\frac{12\sqrt{x}}{x^2}$  B)  $\frac{12}{x}$  C)  $\frac{144\sqrt{12x}}{x}$  D)  $\frac{12\sqrt{x}}{x}$

18)  $\frac{4}{\sqrt{5}-6}$  18) \_\_\_\_\_

A)  $\frac{4\sqrt{5}+24}{31}$  B)  $\frac{4\sqrt{5}-24}{31}$  C)  $-\frac{4\sqrt{5}+24}{31}$  D)  $-\frac{4\sqrt{5}-24}{31}$

Solve.

19)  $\sqrt{x+4}-2=0$  19) \_\_\_\_\_

A) 36 B) 0 C) 8 D) 4

20)  $\sqrt{3x+4}-9=0$  20) \_\_\_\_\_

A) 231 B)  $\frac{77}{3}$  C)  $\emptyset$  D)  $\frac{3}{77}$

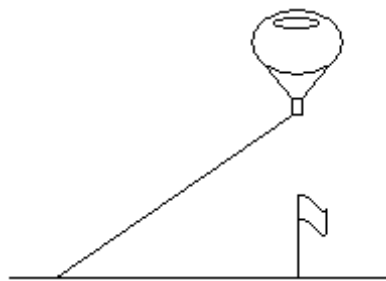
21)  $\sqrt[3]{x+1}-2=0$  21) \_\_\_\_\_

A) 8 B) 4 C) 3 D) 7

22) Scott set up a volleyball net in his backyard. One of the poles, which forms a right angle with the ground, is 8 feet high. To secure the pole, he attached a rope from the top of the pole to a stake 10 feet from the bottom of the pole. To the nearest tenth of a foot, find the length of the rope. 22) \_\_\_\_\_

A) 12.8 ft B) 164 ft C) 6 ft D) 4.2 ft

23) A balloon is secured to rope that is staked to the ground. A breeze blows the balloon so that the rope is taut while the balloon is directly above a flag pole that is 50 feet from where the rope is staked down. Find the length of the rope if the altitude of the balloon is 80 feet. 23) \_\_\_\_\_



A)  $10\sqrt{89}$  ft B) 130 ft C)  $10\sqrt{13}$  ft D)  $10\sqrt{39}$  ft

Perform the indicated operation. Write the result in the form  $a + bi$ .

24)  $(9 + 7i) - (-2 + i)$  24) \_\_\_\_\_  
 A)  $7 + 8i$  B)  $11 + 6i$  C)  $11 - 6i$  D)  $-11 - 6i$

25)  $2i(7 - 2i)$  25) \_\_\_\_\_  
 A)  $14i - 4i^2$  B)  $-4 + 14i$  C)  $14i + 4i^2$  D)  $4 + 14i$

26)  $(\sqrt{11} + 2i)(\sqrt{11} - 2i)$  26) \_\_\_\_\_  
 A)  $11 - 2i\sqrt{2}$  B)  $7 + 0i$  C)  $15 + 0i$  D)  $11 - 4i$

27)  $\frac{9}{3 + i}$  27) \_\_\_\_\_  
 A)  $\frac{27}{10} + \frac{9}{10}i$  B)  $\frac{27}{10} - \frac{9}{10}i$  C)  $\frac{27}{8} - \frac{9}{8}i$  D)  $\frac{27}{8} + \frac{9}{8}i$

28)  $\frac{9 + 9i}{2 + 5i}$  28) \_\_\_\_\_  
 A)  $-\frac{27}{29} - \frac{63}{29}i$  B)  $-3 + \frac{9}{7}i$  C)  $\frac{63}{29} - \frac{27}{29}i$  D)  $\frac{9}{7} + \frac{9}{7}i$

29)  $\frac{7 - 9i}{9 + 2i}$  29) \_\_\_\_\_  
 A)  $\frac{81}{17} + \frac{67}{17}i$  B)  $\frac{9}{17} - \frac{19}{17}i$  C)  $\frac{81}{77} - \frac{19}{77}i$  D)  $\frac{9}{77} - \frac{19}{77}i$

30)  $(24 - 6i)(4 + i)$  30) \_\_\_\_\_  
 A)  $102 - 24i$  B)  $90 + 0i$  C)  $102 - 48i$  D)  $102 + 0i$

31)  $(3 - 6i) + (-3 + 6i)$  31) \_\_\_\_\_  
 A)  $6 - 12i$  B)  $0 + 0i$  C)  $-6 + 12i$  D)  $-6 - 12i$

Solve.

32)  $\sqrt{x + 63} - \sqrt{x + 8} = 5$  32) \_\_\_\_\_  
 A) 1 B) -1 C)  $\emptyset$  D) 2

33)  $\sqrt{2x + 3} = 1 + \sqrt{x + 1}$  33) \_\_\_\_\_  
 A) -3, 1 B)  $\emptyset$  C) -1, 3 D) 1, 3

Rationalize the denominator and simplify. Assume that all variables represent positive real numbers.

34)  $\frac{2}{\sqrt{x} + 9}$  34) \_\_\_\_\_  
 A)  $\frac{-18 + 2\sqrt{x}}{x - 81}$  B)  $\frac{-18 + 2\sqrt{x}}{x^2 - 81}$  C)  $\frac{-18 - 2\sqrt{x}}{x - 81}$  D)  $\frac{-18 - 2\sqrt{x}}{x + 81}$

35)  $\frac{28}{\sqrt{7x}}$

A)  $\frac{4\sqrt{7x}}{7x}$

B)  $\frac{28\sqrt{x}}{x}$

C)  $\frac{28\sqrt{7x}}{7x}$

D)  $\frac{4\sqrt{7x}}{x}$

35) \_\_\_\_\_

36)  $\frac{7\sqrt{3}}{\sqrt{11}}$

A)  $\frac{\sqrt{1617}}{11}$

B)  $\frac{\sqrt{33}}{77}$

C)  $\frac{7\sqrt{33}}{11}$

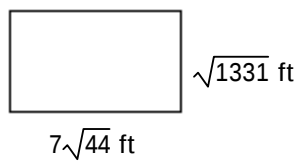
D)  $\frac{77\sqrt{11}}{3}$

36) \_\_\_\_\_

Solve.

37) Find the area of the rectangle.

37) \_\_\_\_\_



A)  $154\sqrt{11}$  sq. ft

B) 1694 sq. ft

C)  $14\sqrt{11}$  sq. ft

D) 154 sq. ft