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

Write the phrase as an algebraic expression. Use the variable x to represent each unknown number.

1) The product of a number and 21
   A) \( \frac{x}{21} \)  
   B) 21x  
   C) x + 21 or 21 + x  
   D) 21(x + 21) or 21(21 + x)

Evaluate.

2) 72
   A) 3  
   B) 49  
   C) 9  
   D) 14

Simplify the expression.

3) \( \sqrt{64} - |1 + 9| + 3 \)
   A) -3  
   B) 3  
   C) 59  
   D) 19

Simplify. Use positive exponents to write the answer.

4) \( \frac{3r^2(r^4)^3}{20(r^5)-2} \)
   A) \( \frac{3r^6}{20} \)  
   B) \( \frac{3}{20r^6} \)  
   C) \( \frac{3}{20r^{24}} \)  
   D) \( \frac{3r^{24}}{20} \)

Multiply or divide as indicated.

5) - \( \frac{3}{5} + \left( -\frac{6}{7} \right) \)
   A) \( \frac{7}{10} \)  
   B) \( \frac{10}{7} \)  
   C) \( -\frac{7}{10} \)  
   D) \( -\frac{18}{35} \)

TRUE/FALSE. Write 'T' if the statement is true and 'F' if the statement is false.

Tell whether the statement is true or false.

6) Some rational numbers are irrational.

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

Write the number in scientific notation.

7) 589.207
   A) \( 5.89207 \times 10^{-2} \)  
   B) \( 5.89207 \times 10^{-1} \)  
   C) \( 5.89207 \times 10^2 \)  
   D) \( 5.89207 \times 10^1 \)

Simplify. Use positive exponents to write the answer.

8) \( \frac{x^{-3}(x^5)^{-5}}{(x^{-8})^2} \)
   A) \( \frac{1}{x^{44}} \)  
   B) \( \frac{1}{x^{12}} \)  
   C) \( x^7 \)  
   D) \( x^{44} \)
Place ∈ or ∉ in the space provided to make the statement true.
9) \( \sqrt{10} \) if \( x \) \( | \) \( x \) is a rational number
A) \( \notin \) B) \( \in \)

Complete the statement to illustrate the given property.
10) \( 4 + (-4) = \) Additive inverse property
A) 16 B) -8 C) 0 D) 8

Simplify the expression.
11) \((7p^7)(-2p^4)\)
A) \(-14p^{28}\) B) \(-14p^{11}\) C) \(14p^{11}\) D) \(14p^{28}\)

Add or subtract as indicated.
12) \(-3.9 - 14.1\)
A) 18 B) -18 C) 10.2 D) -10.2

Find the indicated root.
13) \(\sqrt{\frac{1}{25}}\)
A) 5 B) \(\frac{1}{5}\) C) \(\frac{1}{11}\)

Multiply or divide as indicated.
14) \(\frac{54}{-2}\)
A) -27 B) 27 C) \(-\frac{1}{27}\) D) -37

Write the statement using mathematical symbols.
15) If 5 times \( x \) is added to -6, the result is equal to 11 times \( x \).
A) \(11(5x - 6) = -6\) B) \(4x + (-6) = 11x\) C) \(16x - 11x = 6\) D) \(5x + (-6) = 11x\)

Write the following as an algebraic expression. Then simplify.
16) The perimeter of the rectangle with width \( x \) and length \( x + 27 \).

\[
\begin{array}{c}
\text{x} \\
\text{x + 27}
\end{array}
\]
A) \(x^2 + 27x\) B) \(4x + 54\) C) \(4x + 27\) D) \(2x + 27\)
Solve the inequality. Write the solution set in interval notation and graph the solution set.

17) \(-6 < \frac{n}{7}\)

A) \((-\infty, -42)\)

B) \((-\infty, -42]\)

C) \([-42, \infty)\)

D) \((-42, \infty)\)

Solve the compound inequality. Graph the solution set.

18) \(x + 9 < 7\) and \(-9x < -27\)

A) \{\}

B) \((-2, 3)\)

C) \((-\infty, -2)\)

D) \((-\infty, -2) \cup (3, \infty)\)

Solve.

19) A certain car gets 35 miles per gallon and has a 18 gallon tank. How many times would the tank have to be filled to drive 2,520 miles?

A) 6

B) 3

C) 5

D) 4

Solve the formula for the specified variable.

20) \(d = rt\) for \(r\)

A) \(r = d - t\)

B) \(r = \frac{d}{t}\)

C) \(r = \frac{t}{d}\)

D) \(r = dt\)
Solve the equation.
21) \(5x - (4x - 1) = 2\)
A) \(-1\) \quad B) \(1\) \quad C) \(\frac{1}{9}\) \quad D) \(-\frac{1}{9}\)

Solve the inequality. Write the solution set in interval notation and graph the solution set.
22) \(a + 7 < 14\)
A) \((-\infty, 21)\)
B) \((-\infty, 21]\)
C) \((-\infty, 7)\)
D) \((7, \infty)\)

List the elements of the set.
23) If \(A = \{x \mid x \text{ is an odd integer}\}\) and \(B = \{47, 49, 50, 52\}\), list the elements of \(A \cup B\).
A) \(\{x \mid x \text{ is an odd integer or } x = 50 \text{ or } x = 52\}\)
B) \(\{x \mid x \text{ is an odd integer}\}\)
C) \(\{47, 49\}\)
D) \(\{}\)

Solve.
24) In a recent International Gymnastics competition, the U.S., China, and Romania were the big winners. If the total number of medals won by each team are three consecutive integers whose sum is 63 and the U.S. won more than China who won more than Romania, how many medals did each team win?
A) U.S.: 20 medals; China: 19 medals; Romania: 18 medals
B) U.S.: 65 medals; China: 64 medals; Romania: 63 medals
C) U.S.: 23 medals; China: 22 medals; Romania: 21 medals
D) U.S.: 22 medals; China: 21 medals; Romania: 20 medals

25) If 5 times a number is added to -8, the result is equal to 13 times the number.
A) 1 \quad B) -2 \quad C) -1 \quad D) 2
Solve the inequality. Write the solution set in interval notation and graph the solution set.

26) \(-2t - 4 \geq -3t - 10\)

A) \((-\infty, -6)\)

B) \((-14, \infty)\)

C) \((-\infty, -6]\)

D) \([-6, \infty)\)

Solve the equation.

27) \(61 = 7x + 5\)

A) \(\{53\}\)  
B) \(\{8\}\)  
C) \(\{3\}\)  
D) \(\{49\}\)

Solve the formula for the specified variable.

28) \(P = 2L + 2W\) for \(L\)

A) \(L = \frac{P - 2W}{2}\)  
B) \(L = P - 2W\)  
C) \(L = \frac{P - W}{2}\)  
D) \(L = P - W\)

Graph the solution set of the inequality and write it in interval notation.

29) \(\{x | x \leq 3\}\)

A) \((-\infty, 3)\)

B) \((3, \infty)\)

C) \([3, \infty)\)

D) \((-\infty, 3]\)
Solve the formula for the specified variable.

30) $A = \frac{1}{2}bh$ for $b$

A) $b = \frac{A}{2h}$  
B) $b = \frac{h}{2A}$  
C) $b = \frac{2A}{h}$  
D) $b = \frac{Ah}{2}$
MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

1) B
2) B
3) B
4) D
5) A
TRUE/FALSE. Write 'T' if the statement is true and 'F' if the statement is false.

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

7) C
8) A
9) A
10) C
11) B
12) B
13) B
14) A
15) D
16) B
17) D
18) A
19) D
20) B
21) B
22) C
23) A
24) D
25) C
26) D
27) B
28) A
29) D
30) C