Signed Numbers
Simplify:
1) \(-6 + 2 = \)

2) \(12 - (-2) = \)

3) \(-3 - 12 = \)

4) \(-15(-8) = \)

5) \(-12(6) = \)

Order of Operations
Evaluate:
6) \(2 - (-6(8 + 6)) = \)

7) \(13 - 4(3 - 9) = \)
8) \[
\frac{19 - 6(3)}{4 + 3} =
\]

**Absolute Values**

Evaluate:

9) \[|14| + |9| =
\]

10) \[| -2 - 7| - |3 + 2| =
\]

11) \[7 \cdot |4 - 9| + |8| =
\]

**Exponents**

Evaluate:

12) \[6^0 =
\]

13) \[5^4 =
\]

14) \[5x^3 \cdot x^2 =
\]
15) \[ 4(x^4)^6 = \]

**Radicals (square roots)**

Simplify:

16) \( \sqrt{121} = \)

17) \( (\sqrt{3})^2 = \)

True or false?

18) \( 4\sqrt{2} > 3 \)

19) \( 3\sqrt{6} < \sqrt{36} \)

**Fractions**

Simplify as much as possible:

20) \( \frac{6}{27} = \)

Fill in the missing number:

21) \( \frac{4}{9} = \frac{81}{} \)
Change to a mixed number:

22) \( \frac{13}{5} = \)

Change to an improper fraction:

23) \( \frac{6\frac{3}{4}}{4} = \)

Simplify the following as much as possible:

24) \( \frac{1}{3}(5+10) = \)

25) \( \left( \frac{1}{6} + \frac{2}{5} \right) + 8 = \)

Compare the sizes of the following pairs. Which number is larger?

26) \( \frac{4}{9} \text{ or } \frac{2}{5} \)
Perform the following operations: (reduce to lowest terms)

27) \( \frac{9}{10} \) or \( \frac{10}{13} \)

28) Add: \( \frac{4}{5} + \frac{2}{7} \)

29) Multiply: \( \frac{5}{6} \times \frac{3}{10} \)

30) Divide: \( \frac{12}{19} \div \frac{1}{3} \)

31) Subtract: \( \frac{5}{6} - \frac{1}{2} \)

32) Subtract: \( 7 - 3\frac{5}{6} \)

33) Multiply: \( 3\frac{1}{3} \times 5\frac{1}{10} \)
34) Add: \( \frac{1}{5} + \frac{2}{3} \)

Arithmetic of Decimals
Perform the indicated operations without a calculator:
35) \(.353 + .757\)

36) \(2.30 + 0.06\)

37) \(0.53 \times 0.02\)

38) \(0.44 \times 0.05\)

Percentages
39) Change 0.75 to a percentage

40) Change 79.3% to a decimal

41) Change 4.1% to a decimal

42) Change 0.543 to a percentage

Simplifying Expressions
Simplify as much as possible. Do not solve

43) 7 + (2 − a)

44) 8 − (4(−x + 7))

45) \( \frac{4}{9}(2x) \)

46) − 5(x − 3) − (−x + 7)
Evaluating Expressions
Simplify as much as possible

47) \( x^2 - 3x + 4 \) when \( x = 2 \)

48) \( 2t^3 \) when \( t = 4 \)

Solving Linear Equations
Solve for the variable in each of the following. Simplify your answers.

49) \( A - 3 = 13 \)

50) \( C + 9 = -9 \)

51) \( 2(x + 5) = 6x + 14 \)
Working with Formulas
Substituting and solving

52) \[ 2 - A = B + x \] Solve for A if \[ B = 4, \quad x = 4 \]

53) \[ cd = a + 8 \] Solve for d if \[ c = 9, \quad a = 10 \]

54) \[ ax - y = 16 \] Solve for x if \[ a = 8, \quad y = 5 \]

55. Find the following:
   a. If \[ f(x) = x^3 + 4x^2 + 3 \], find \( f(1) \)

   b. If \[ h(x) = 3x^3 + x^2 - 4x \], find \( h(0) \)

56. Expand the following expressions and simplify the results.
   a. \((x+2)(x-3)\)
57. Simplify the following. Your answers should contain no parentheses.

a. \((x - 4)^2 + x(x + 4)\)

b. \(x(x + 5) + (x + 5)^2\)

58. Simplify the following:

a. \(\frac{x^5}{x^2}\)

b. \(\frac{x^4}{x^9}\)

59. Solve for \(x\):

a. \(x^2 = 169\)
b. \(3x^2 = 75\)

c. \(x^2 - 25 = 0\)

d. \(x^2 + 6x + 9 = 0\)

60. Find the equation of the straight line which passes through \((2, 6)\) and has slope of 2.

61. Find the slope of the line that has the equation.

   a. \(3x + 5y = 7\)
62. Graph the equation.
   
   a. \( y = -x + 4 \)

\[ -4x + 10y = 8 \]
b. \( y = 3x^2 \)

c. \( y = -2x^2 \)
d. \( y = x^2 + 5 \)

63. Simplify the following.

a. \( \sqrt{81} \)

b. \( \sqrt{x^4} \)

c. \( 8^{-2/3} \)
64. List the value(s) of $x$ at which the function is undefined.

a. $f(x) = \sqrt{x}$

b. $g(x) = \sqrt{x - 4}$
c. \[ h(x) = \frac{4}{3x+4} \]

65. Solve the inequalities for \( x \) that is, find all values of \( x \) for which this inequalities holds.

a. \( x + 3 \leq 0 \)

b. \( 3x - 4 > 0 \)

c. \( x^2 - 9 > 0 \)

d. \( 2x + 5 > 3x - 7 \)
66. Find x:

67. Find x:

68. Find \( \cos \theta \):
69. Find $x$ if $\sin x = \frac{1}{2}$ and $0 < x < \frac{\pi}{2}$

70. Express $270^\circ$ in radians

71. Express $180^\circ$ in radians

72. Simplify $\sqrt{1-\sin^2 y}$, $0 < y < \frac{\pi}{2}$

73. Let $\theta$ be an acute angle of a right triangle and $\tan \theta = \frac{4}{3}$. Find $\sin \theta$.
74. Find the exact value of the expression \( \sin 90^\circ + \cos 90^\circ \)

75. Find \( \tan^2 \left( \frac{\pi}{3} \right) + \sin^2 \left( \frac{\pi}{6} \right) \)