

All problems listed below are prerequisite skills required for Algebra I. You will be quizzed on these Pre-Algebra skills during the first week of school. The packet will not be graded; however, you are responsible for the material. **The assessment will count as a grade in your first quarter average.** There may be some concepts that you do not remember. It is your responsibility to review by using the links provided below.

## Operations with Integers

### Adding and Subtracting Integers

<https://www.khanacademy.org/math/algebra-basics/core-algebra-foundations/core-algebra-foundations-negative-numbers/v/adding-and-subtracting-negative-number-examples>

Simplify the following.

1)  $-8 + 13$

2)  $-11 + 19$

3)  $41 + (-63)$

4)  $-77 + (-46)$

5)  $-19 - 8$

6)  $9 - (-24)$

7)  $22 - 41$

8)  $-58 - (-42)$

9) There was a  $6^\circ$  drop in temperature over the past hour. If it is  $55^\circ$  now, what was the temperature an hour ago?

10) It is  $-9^\circ$  now. The temperature will drop  $5^\circ$  in two hours. What will the temperature be in two hours?

### Multiplying and Dividing Integers

<https://www.khanacademy.org/math/algebra-basics/core-algebra-foundations/core-algebra-foundations-negative-numbers/v/multiplying-positive-and-negative-numbers>

Simplify the following.

11)  $5(18)$

12)  $8(22)$

13)  $-12(15)$

14)  $-24(8)$

15)  $-47(-2)$

16)  $81(-4)$

17)  $-64 \div (-8)$

18)  $-78 \div (13)$

## Fractions

### Simplifying Fractions (Writing Fractions in Lowest Terms)

<https://www.khanacademy.org/video/fractions-in-lowest-terms>

Reduce the following fractions.

19.  $\frac{8}{24}$

20.  $\frac{-3}{-9}$

21.  $\frac{-15}{20}$

22.  $\frac{35}{45}$

### Operations with Fractions

Add or subtract the following, and then simplify.

<https://www.khanacademy.org/math/pre-algebra/fractions-pre-alg/fractions-unlike-denom-pre-alg/v/adding-and-subtracting-fractions>

23)  $\frac{2}{5} + \frac{1}{5}$

24)  $\frac{2}{7} - \frac{1}{7}$

25)  $\frac{4}{3} + \frac{4}{3}$

26)  $\frac{5}{16} - \frac{4}{16}$

27)  $\frac{4}{9} - \frac{1}{9}$

28)  $\frac{7}{2} - \frac{4}{2}$

29)  $\frac{1}{2} + \frac{1}{4}$

30)  $\frac{4}{3} + \frac{5}{9}$

31)  $\frac{3}{2} + \frac{8}{16}$

32)  $1 - \frac{1}{19}$

33)  $\frac{3}{4} - \frac{2}{3}$

34)  $\frac{11}{12} - \frac{4}{15}$

35)  $\frac{94}{100} - \frac{11}{25}$

36)  $-\frac{4}{11} + \frac{3}{5}$

37)  $-\frac{4}{15} + \left(-\frac{9}{45}\right)$

38)  $2\frac{1}{4} - 6\frac{1}{3}$

Multiply or divide the following, and then simplify.

[https://www.khanacademy.org/math/arithmetic/fractions/multiplying\\_fractions/v/multiplying-fractions](https://www.khanacademy.org/math/arithmetic/fractions/multiplying_fractions/v/multiplying-fractions)

<https://www.khanacademy.org/math/arithmetic/fractions/div-fractions-fractions/v/another-dividing-fractions-example>

39)  $\frac{4}{5} \times \frac{3}{8}$

40)  $\frac{5}{12} \times \frac{4}{9}$

41)  $-\frac{3}{5} \times \frac{5}{6}$

42)  $-\frac{2}{5} \times \frac{6}{7}$

43)  $\frac{2}{3} \times \frac{1}{11}$

44)  $\frac{-3}{2} \times \frac{-1}{3}$

45)  $\frac{2}{11} \times \frac{110}{-17}$

46)  $\frac{6}{5} \times \frac{10}{12}$

47)  $\frac{2}{3} \div \frac{1}{3}$

48)  $-\frac{16}{9} \div \frac{4}{9}$

49)  $\frac{3}{2} \div \frac{1}{2}$

50)  $\frac{16}{36} \div \frac{24}{60}$

51)  $-\frac{14}{32} \div \frac{12}{15}$

52)  $-7 \div \frac{3}{5}$

53)  $-\frac{1}{3} \div 4$

54)  $\frac{-2}{8} \div \frac{-4}{2}$

### Find the Greatest Common Factor

[https://www.khanacademy.org/math/pre-algebra/factors-multiples/greatest\\_common\\_divisor/v/greatest-common-divisor](https://www.khanacademy.org/math/pre-algebra/factors-multiples/greatest_common_divisor/v/greatest-common-divisor)

55) 42, 60

56) 24, 42

57) 27, 45

58) 11, 21

### Find the Least Common Multiple

[https://www.khanacademy.org/math/pre-algebra/factors-multiples/least\\_common\\_multiple/v/least-common-multiple-exercise](https://www.khanacademy.org/math/pre-algebra/factors-multiples/least_common_multiple/v/least-common-multiple-exercise)

59) 27, 18

60) 15, 18

61) 9, 15

62) 64, 48

## Algebraic Expressions

Simplify using the order of operations (PEMDAS).

<https://www.khanacademy.org/math/pre-algebra/pre-algebra-arith-prop/pre-algebra-order-of-operations/v/introduction-to-order-of-operations>

63)  $32 + (10 \times 4)$   $32 + (10 \times 4)$

64)  $90 \div 3 + 10 \times 6$   $90 \div 3 + 10 \times 6$

65)  $32 \div 210 - 8$   $32 \div 210 - 8$

66)  $20 - 2 + 15 \div 3$   $20 - 2 + 15 \div 3$

67)  $18 + [(12 - 2) \div 5]$   $18 + [(12 - 2) \div 5]$

68)  $25 \div 5 + 6 \times 6$   $25 \div 5 + 6 \times 6$

69)  $7 + [(20 - 4) \div 4]$   $7 + [(20 - 4) \div 4]$

70)  $13 - [(4 - 2) \times (2 + 2)]$

Simplify the expressions by using the distributive property or combining like terms.

<https://www.khanacademy.org/math/algebra/introduction-to-algebra/alg1-manipulating-expressions/v/combining-like-terms>

71)  $7y + 5y - 5y$

72)  $3m + 4n - 6n$

73)  $15f - 5 + 2f$

74)  $10t - 9t + 6u + 4u$

75)  $2(x + 3)$

76)  $-(4 - x)$

77)  $\frac{2}{3}(3x + 9)$

78)  $5(2x - 4) + (x - 7)$

## Evaluating Expressions

<https://www.khanacademy.org/math/algebra/introduction-to-algebra/alg1-intro-to-variables/v/variables-and-expressions-1>

Evaluate each expression given that  $x = 2$ ,  $y = 3$ ,  $z = 4$ .

79)  $x + 6 =$

80)  $y^2 =$

81)  $5z - 3 =$

## **Algebraic Equations**

<https://www.khanacademy.org/math/algebra/one-variable-linear-equations>

### **One Step Equations**

Solve each equation for the missing variable.

82)  $4 + b = 30$

83)  $10 + c = 25$

84)  $x - 60 = 20$

85)  $g - 16 = 4$

86)  $x - 15 = -20$

87)  $w + 14 = 10$

88)  $3h = 27$

89)  $\frac{j}{3} = 4$

90)  $6p = 30$

91)  $\frac{n}{10} = 40$

92)  $\frac{h}{4} = 15$

93)  $9s = 81$

## Two and Multi- Step Equations

Solve each equation for the missing variable.

$$94) 6 = \frac{a}{4} + 2$$

$$95) -6 + \frac{x}{4} = -5$$

$$96) 9x - 7 = -7$$

$$97) 0 = 4 + \frac{n}{5}$$

$$98) \frac{v+9}{3} = 8$$

$$99) 2(n + 5) = -8$$

## Plot Points on the Coordinate Plane

<https://www.khanacademy.org/math/basic-geo/basic-geo-coord-plane/coordinate-plane-4-quad/v/plot-ordered-pairs>

100) Plot and label each point.

A(5, 10)

B(1, 9)

C(-6, 8)

D(9, 0)

E(-6, 0)

F(-8, -4)

G(5, 0)

H(-1, -1)

I(-8, -1)

J(7, 10)

K(0, 4)

L(-1, 10)

M(-6, -6)

N(0, -10)

O(-4, -9)

P(4, 1)

Q(7, -9)

R(0, 0)

