

ALGEBRA - QUIZ

Solve and check.

- $x - 14 = -5$
- $12 = -4 + x$
- $-\frac{2}{3}x + 5 = 3$
- $-2x + 5 - x = 17 + x$
- $-6 + x = -4$
- $0.4 + x = -3.7$
- $6x = -54$
- $-3x = 3\frac{1}{3}$
- $-x - 4 = 4x - 5 - 5x + 1$
- $12 - 5y = -3$
- $4(x + 2) = 20$
- $2(z - 3) = z + 5$
- $z - \frac{2}{3} = -\frac{5}{6}$
- $6 + \frac{-x}{3} = 15$

Translate each problem into an equation and solve.

- Eight more than a number is 42. Find the number.
- Jim worked 12 h on a science project. He worked $\frac{3}{4}$ as long as Jessie worked. How long did Jessie work?
- Three less than twice the temperature is -17 . Find the temperature.
- Bob's salary increased by \$98 is the same as three times his salary. Find his salary.
- Six times the difference between Margot's age and 2 is 54. Find Margot's age.
- Use the formula $T = 3(ab - c)$ to find b for $T = 18$, $a = 3$, and $c = 15$.
- If a number is decreased by 6 and then multiplied by -5 , the result is 12 less than twice the number. Find the number.
- Write the missing reasons in this proof. All variables represent real numbers.

Prove: If $a = b$ and $c \neq 0$, then $\frac{a}{c} = \frac{b}{c}$.

Statement	Reason
1. $a = b$ and $c \neq 0$	1. _____?
2. $\frac{a}{c} = \frac{a}{c}$	2. _____?
3. $\frac{a}{c} = \frac{b}{c}$	3. _____?

Thus, if $a = b$ and $c \neq 0$, then $\frac{a}{c} = \frac{b}{c}$.

- Solve $-5x - [2(1 - 3x) + 4] = 7x$.

ALGEBRA - QUIZ

Simplify.

1. $-(-6)$

2. $-(7 - 5)$

3. $|-8|$

4. $-|-9|$

Compare. Use $>$, $<$, or $=$.

5. $-7 \underline{\hspace{1cm}} -6$

6. $0.1 \underline{\hspace{1cm}} -0.2$

7. $|-8| \underline{\hspace{1cm}} |8|$

8. $|\frac{1}{4}| \underline{\hspace{1cm}} -|-\frac{1}{2}|$

Add.

9. $-9 + 5$

10. $16 + (-16)$

11. $-8 + (-9)$

12. $8.2 + (-6.5)$

Subtract.

13. $8 - (-5)$

14. $-4 - 7$

15. $|-15| - |-1|$

16. $5.6 - 9.2$

Evaluate for $x = 7$, $y = -7$, and $z = -12$.

17. $x - y + z$

18. $|x| + |z|$

19. $2z$

20. $-x - 2y$

Multiply.

21. $-8(-9)$

22. $\frac{1}{6}(-30)$

23. $-8(12)$

24. $4^2(-3)^2$

Divide, if possible.

25. $\frac{-48}{-8}$

26. $\frac{0}{-2}$

27. $18 \div 0$

28. $-\frac{3}{5} \div \frac{4}{5}$

29. Evaluate $2a^2 + b^3$, for $a = -4$ and $b = -3$.

30. Evaluate $\frac{x - 25y}{-5y}$, for $x = -6$ and $y = \frac{3}{5}$.

Simplify.

31. $-8 + 5 - 9 - (-2)$

32. $-8 + 6(-5)$

33. $-8y + 8y$

34. $-6c + 5c + d$

35. $-4a + 3b - 6a - 2b$

36. $-3c - 2(4 - 5c)$

37. $-9y - (5 - y) + 8$

38. $4.2x - 3.7y + 8.2 - 9.5x + 2.9y$

39. $(-9 + 4)(8 - 10 \cdot 2 - 3)$

40. $5y - [-(3 + 4y) - 2(7 - y)] - 4$

Cumulative Review

1. Write a mathematical expression for twice a number decreased by 17.
2. Write a mathematical expression for the square of a number increased by 21 times the number.
3. Use exponents to rewrite the expression $(3)(3)(3)(a)(a)(b)(b)(b)$.
4. Write 4^4a^5 without using exponents.

Evaluate.

5. $3 + 2(4) - \frac{10}{2}$
6. $\frac{(4+8)^2}{4(2)} + 3(2)$
7. $4(5a + 3b^2)$, if $a = 6$ and $b = 4$
8. $3ab - 4c$, if $a = 2$, $b = 3$, and $c = \frac{1}{2}$

Solve.

9. $x = \frac{3+7}{10}$
10. $t = 3 \cdot 4 - 2$
11. What number is called the additive identity?

State the property shown.

12. $(3 + 8)4 = 11(4)$
13. $(7x)a = (x7)a$
14. $y + 8 = y + 8$
15. $6(7a + 3) = 42a + 18$
16. $y \cdot 0 = 0$

Simplify.

17. $4mn + 12mn$
18. $16x + 12xy - 13x$
19. $3(a + 0.2b) - 0.4b$
20. $4(x + 3y) + 2(2x + y)$
21. $3a + 4b + 17a + 5b$
22. $5(a + 2b) + 6a + 7b$

Find each absolute value.

23. $|-215|$
24. $-|-13 + 4|$

Write each sentence as an equation.

25. The sum of y and the cube of n is equal to x .
26. The square of a side (s) is equal to the area (A).
27. Name the set of numbers graphed.



Graph each set of numbers on a number line.

28. $\{-3, -1, 2, 5\}$
29. $\{\dots, -6, -5, -4\}$
30. Find $4 + (-6)$ on a number line.

Find each sum or difference.

31. $36 + (-73)$
32. $-8 + (-21)$
33. $-9.3 + 4.7$
34. $-\frac{1}{2} + \left(-\frac{1}{6}\right) + \left(-\frac{2}{3}\right)$
35. $-21 + (-28)$
36. $3.6 - 7.9$
37. $-3a + 5m + 16m + (-25a)$
38. $-7t - 16t$
39. $-4t - 3t + 7a - 5a$
40. $4(3r + 5y) - 6r$
41. $13h - 12j - 34h$
42. $23t - 67y + 42y$
43. $6(3r - 4t) + 3(4t - 3r)$
44. $17y - 4t - 8y - 3t$
45. The formula for finding the Celsius temperature (C) when you know the Fahrenheit temperature (F) is $C = \frac{5}{9}(F - 32)$. Find the Celsius temperature when the Fahrenheit temperature is 59° .

Define the variable and write an equation.

46. Eighty-five decreased by one-half of a number is 57.

BASIC ALGEBRA

SOLVING EQUATIONS

Solve each equation.

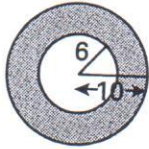
1. $y + (-34) = 35$
2. $f + 35 = -98$
3. $125 + z = -76$
4. $27 = 45 + r$
5. $-23 = w + (-12)$
6. $-57 = 22 + t$
7. $x - 43 = 56$
8. $y - 67 = -29$
9. $32 - t = 89$
10. $12 - w = -34$
11. $-18 - a = -38$
12. $-58 = e - (-27)$

Write an equation and solve.

13. Thirteen subtracted from a number is -6 . Find the number.
14. The sum of a number and -35 is 98 . Find the number.
15. A number added to 258 is -77 . Find the number.
16. A number decreased by -11 is -176 . Find the number.
17. An elevator started at the first floor and went up to the twenty-third floor. It then came down seven floors. At what floor was it then located?
18. Joe skied down the mountain in 230.5 seconds. That was 42.7 seconds faster than his brother. What was his brother's time?
19. A triangle has a perimeter of 36.8 meters. If the lengths of two sides are 11.5 meters and 12.7 meters, find the length of the third side.
20. Mick purchased stock in Chesco, Inc. for $25\frac{1}{8}$ points per share. The shares dropped $1\frac{1}{4}$ points and then climbed $2\frac{3}{4}$ points. Find the new listing.

BASIC ALGEBRA

Choose the one best answer to each question or problem.

- If $3x - 12 = 18$, find the value of $x - 4$.
(A) 10 (B) 6 (C) 9
(D) 8 (E) None of these
- If $2x - 8 = 7$, find the value of $10x - 40$.
(A) $\frac{7}{2}$ (B) 14 (C) 35
(D) 56 (E) None of these
- If $x + y = 3.9 + x$, find the value of y .
(A) 0 (B) -3.9 (C) 3.9
(D) x (E) None of these
- If $5x - 9 = 23$, find the value of $5x - 7$.
(A) 25 (B) -2 (C) 21
(D) -23 (E) None of these
- If $9y + 8 = -16$, find the value of $9y - 2$.
(A) 0 (B) 10 (C) -6
(D) -24 (E) None of these
- If $\frac{c}{9} = 2$, find the value of $\frac{c}{2}$.
(A) $\frac{1}{9}$ (B) $\frac{1}{2}$ (C) 2
(D) 9 (E) None of these
- If $3(2 - 4x) = 17$, find the value of $6 - 12x$.
(A) 6 (B) 8 (C) 17
(D) 51 (E) None of these
- If $\frac{3}{4}x = -9$, find the value of $\frac{1}{4}x$.
(A) -3 (B) 3 (C) $\frac{1}{2}$
(D) $-\frac{1}{2}$ (E) None of these
- If a number is decreased by 5 and then multiplied by 3, the result is 26. Find the result if the same number is decreased by 5 and then multiplied by 6.
(A) 12 (B) 13 (C) 21
(D) 52 (E) None of these
- The formula for the area of a circle with radius r is $A = \pi r^2$. Find the area of the ring shaded below.

(A) 4π (B) 25π (C) 8π
(D) 24π (E) None of these

BASIC ALGEBRA

Choose the best answer to each question or problem.

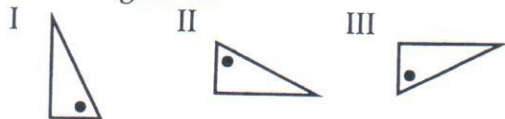
1. $|6 - 10| = \underline{\hspace{1cm}}$.

- (A) 16 (B) -16 (C) 4
(D) -4 (E) None of these

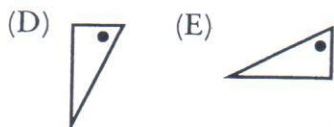
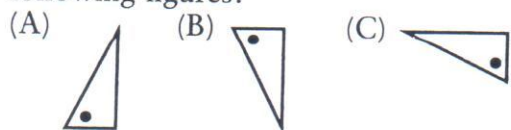
2. Find the missing number in the sequence: -10, -7, -4, -1, $\underline{\hspace{1cm}}$.

- (A) -3 (B) 1 (C) 0 (D) 2
(E) 3

3. A relationship exists between Figure I and Figure II.



A similar relationship exists between Figure III and which of the following figures?



4. At 9:00 P.M. the temperature reached a low of -15°F . Then it rose 4° each hour. It reached 13°F at $\underline{\hspace{1cm}}$.

- (A) 2:00 A.M. (B) 3:00 A.M.
(C) 4:00 A.M. (D) 5:00 A.M.
(E) 6:00 A.M.

5. Which of the following is greater than $\frac{1}{2}$?

- (A) $-\frac{1}{2}$ (B) $(\frac{1}{2})^2$ (C) $(\frac{1}{2})^3$
(D) 0.5 (E) None of these

6. If a water tank is leaking at a rate of 6 liters per 24 h, how much will it leak in 2 h?

- (A) 1 liter (B) 2 liters
(C) 0.25 liter (D) 0.5 liter
(E) 0.75 liter

7. For which value of x does y have the greatest value for $y = \frac{-16}{x}$?

- (A) $x = 2$ (B) $x = -2$
(C) $x = \frac{1}{2}$ (D) $x = -\frac{1}{2}$
(E) $x = \frac{1}{20}$

8. How much more than $-5\frac{1}{2}$ is $3\frac{3}{4}$?

- (A) $9\frac{1}{4}$ (B) $-9\frac{1}{4}$ (C) $1\frac{1}{4}$
(D) $-1\frac{1}{4}$ (E) $3\frac{3}{4}$

9. What is the maximum total weight of a dozen apples if four of them weigh 90 to 110 g each and the rest weigh 115 to 120 g each?

- (A) 1,500 g (B) 1,400 g
(C) 230 g (D) 120 g
(E) 3

10. Find the value of $0^5 \cdot 1^4 + 1^3$.

- (A) -1 (B) 0 (C) 1 (D) 2
(E) None of these

Cumulative Review

Evaluate.

- $6x$, for $x = 9$
- $7 - y$, for $y = 3$
- $\frac{a}{b}$, for $a = 72$ and $b = 8$
- mn , for $m = 2.1$ and $n = 3$
- $r + s$, for $r = 5.6$ and $s = 9.8$
- $x(y + 1) - (x - 2)$, for $x = 4$ and $y = 7$
- $4x^2 - 3x$, for $x = 2$
- $(2y)^2 + y$, for $y = 12$
- $(a^2 - 2b)^2$, for $a = 4$ and $b = 3$

1.1

1.2

1.3

Use $<$ or $>$ to make each statement true.

- $-5 \underline{\hspace{1cm}} -4$
- $3 \underline{\hspace{1cm}} -2$

2.1

Simplify, if possible.

- $|6|$
- $|-9|$
- $-|-12|$
- $| -(-7) |$
- $-9 + (-8)$
- $-16 + 7$
- $19 + (-19)$
- $-4.2 + 0$
- $1.3 + (-0.6)$
- $16 - 9$
- $-5 - 9$
- $8 - (-4)$
- $-9 - (-7)$
- $\frac{1}{6} - \frac{2}{3}$
- $-14 + 2 + 7 - (-8)$
- $-1(-15)$
- $2 \cdot (-9)$
- $-9 \cdot 7$

2.2

2.4

2.6

- $0(-10)$
- $(2)(-9)(-3)$
- $(3^2)(-2)^3(-1)$
- $\frac{-16}{8}$
- $\frac{0}{-19}$
- $42 \div 0$
- $-18 \div (-3)$
- $-54 \div [24 \div (-4)]$

Evaluate for $x = -2$, $y = 4$, and $z = -1$.

- $x + (-y)$
- $|x - 3z|$
- $|4z - 7y|$

Simplify.

- $6x - 11x$
- $3x - 4y - 7x$
- $-a + 3 - 7a - 5 + 4a - 2$
- $-(4x - 7y) + 2x$
- $-3a - 2(7b + a) - 4b$
- $3(2x - y) - 4(y - x)$

Solve each problem.

- Use the formula $d = 5t^2$. Find the distance d in meters that an object falls in a time t of 5 sec.
- Use the formula $d = 0.04s^2$ to find d for $s = 60$.
- Use the formula $p = 2l + 2w$ to find p for $l = 7$ ft, $w = 5$ ft.
- Use the formula $A = \frac{1}{2}bh$ to find A for $b = 7$ yd, $h = 8$ yd.
- Use the formula $p = 4s$ to find p for $s = 3.2$ cm.
- Use the formula $A = s^2$ to find A for $s = 4.1$ m.