ELEMENTARY ALGEBRA

The Elementary Algebra section of the Computerized Placement Test (CPT) consists of seventeen (17) multiple-choice questions. This exam has one question per screen with directions given for each individual question. The following are examples of the types of questions found on the CPT.

Directions: Read all directions carefully. Be sure of your answer selection before you confirm your answer and move on to the next screen. You can not go back to change an answer. **Calculators** are **not** allowed unless one appears on the screen during the test. You will be supplied scratch paper and a pencil to be used for all other questions.

Solve the following.

1. $6 – (3 – 4)$
   a. 7
   b. –1
   c. 1
   d. 13

2. $–14 + (7 – 9)$
   a. 2
   b. 16
   c. –16
   d. –30

3. $–2(3) + 13$
   a. 14
   b. 7
   c. 19
   d. –19

4. $–7(2 – 3) + 7$
   a. 14
   b. 21
   c. –7
   d. 7

5. $7x – 5x + y$
   a. $2x + y$
   b. $12x + y$
   c. $2x – y$
   d. $7 – 2x$

6. $2(x + y) – 3x$
   a. $–x + y$
   b. $2y – x$
   c. $5x + y$
   d. $5x + 2y$

Solve, when x = –6.

7. $3x + 2$
   a. -20
   b. -18
   c. 16
   d. -16

Solve, when x = 7.

8. $2(x + 1) – 4$
   a. 6
   b. -12
   c. 11
   d. 12

Solve, when x = –8.

9. $\frac{3x}{4}$
   a. -6
   b. 6
   c. 8
   d. -8

Find an equivalent open expression for the following. (Combine like terms.)

10. $18x + 4x + 3y – 5y$
    a. $22x – 2y$
    b. $22x + 2y$
    c. $12x – 2y$
    d. $12x + 2y$

11. $2x(3x + 4) + x(3 + 2x)$
    a. $4x^2 + x$
    b. $15x^2 + x$
    c. $8x^2 + 11x$
    d. $6x^2 + 5X + 4$

12. $–(x + 3) + 3(x – 4)$
    a. $2x – 15$
    b. $2x – 1$
    c. $4x – 9$
    d. $2x – 9$

13. $3(3x + 2y) – 2(x – 2y)$
    a. $7x$
    b. $7x + 2y$
    c. $9x + 2y$
    d. $7x + 10y$

The following algebraic expressions are equivalent to which of the given options:

14, $\frac{b^2}{3b+b^2}$

a. $\frac{1}{3+b}$

b. $\frac{1}{3+b}$

c. $\frac{1}{2+3}$

d. $\frac{b}{3+2}$

15. $\frac{12x^2+4x}{6x^3}$

a. $\frac{6x+2}{3x^2}$

b. $\frac{3x+1}{6x^3}$

c. $\frac{2+4x}{x}$

d. $\frac{3x+2}{2x^2}$

16. $10x^3 - 2x - 8$

a. $5(2x^3 - x - 4)$

b. $2(5x^3 - x - 4)$

c. $x(10x^2 - 2 - 8)$

d. $2x(5x^2 - 1 - 4)$

17. $21x - 9x^2 - 3x^3$

a. $3(x - 3x^2 - x^3)$

b. $7(3x - 3x - x^2)$

c. $7x(3 - 9x - 3x^2)$

d. $3x(7 - 3x - x^2)$

Evaluate the following.

18. $|6 + 3|$

a. 9

b. –9

c. 3

d. 6

19. $|6 - 3|$

a. 9

b. –9

c. 3

d. 6

20. $|-6 - 3|$

a. 9

b. –9

c. 3

d. 6

21. $|6 - (-3)|$

a. 9

b. –9

c. 3

d. 6

22. $|6| - |3|$

a. 9

b. –9

c. 3

d. 6

23. $|-6| - |-3|$

a. 9

b. –9

c. 3

d. 6

Evaluate the following expressions.

24. 2^3

a. 6

b. 8

c. 9

d. 5

25. 3^3

a. 6

b. 27

c. 9

d. 33

26. $x^2 * x^4$

a. x^6

b. x^8

c. x^{-2}

d. 6x

27 $x^{-3} * x^5$

a. x^{-2}

b. x^{-15}

c. x^8

d. x^2

28. $(3x)^2$

a. $3x^2$

b. $6x^2$

c. 9x

d. $9x^2$

29. $\frac{a^{11}}{a^2}$

a. a^9

b. a^{13}

c. 9a

d. a^{22}

Solve for y.

30. $3x + y = 9$

a. $3x - 9$

b. $9 - 3x$

c. $9 + 3x$

d. $\frac{9}{3x}$

Solve for y.

31. $3z = 6y + x$

a. $6(3z - x)$

b. $\frac{3z - x}{6}$

c. $\frac{6}{3z + x}$

d. $\frac{3z + x}{6}$

Solve for e.

32. $6e = 3de + 8$

a. $\frac{3d - 8}{6}$

b. $\frac{8}{3d + 6}$

c. $8(3d - 6)$

d. $\frac{8}{6 - 3d}$

Solve for a.

33. $6a = \frac{3a + b}{c}$

a. $\frac{c}{3b + 6}$

b. $\frac{3 - 6c}{b}$

c. $6b + c$

d. $\frac{b}{6c - 3}$

Choose the option that is equivalent to the following. (FOIL)

34. $(x - 3y)(x - 2y)$

a. $2x^2 - 5xy - 6y^2$

b. $x^2 - 5xy - 6y^2$

c. $x^2 - 5xy - 6y^2$

d. $x^2 + 5xy - 6y^2$

35. $(6x + 2y)^2$

a. $36x^2 + 24xy + 4y^2$

b. $36x^2 + 12xy + 4y^2$

c. $12x^2 + 16xy + 4y^2$

d. $12x^2 + 8xy + 4y^2$

36. $(3x + y)(2x - 3y)$

a. $5x^2 - 7xy - 2y^2$

b. $6x^2 - 7xy - 2y^2$

c. $5x^2 - 8xy - 4y^2$

d. $6x^2 - 7xy - 3y^2$

37. $(3x - 1)(3x + 1)$

a. $6x^2 - 3x + 1$

b. $6x^2 + 6x - 1$

c. $9x^2 - 1$

d. $9x^2 + 1$

38. Which of the following is a factor for $5x^2 + 6xy + y^2$

a. $(5x + y)$

b. $(5x - y)$

c. $(x - y)$

d. $(3x - 2y)$

39. Which of the following is a factor for $x^2 + xy - 6y^2$

a. $(x - 3y)$

b. $(x + 2y)$

c. $(x - 6y)$

d. $(x + 3y)$

Find the value of the variable.

40. $\frac{3x+6}{5}=3$

a. 1
b. 2
c. 3
d. 4

41. $\frac{18a-24}{3}=4$

a. 1
b. 2
c. 3
d. 4

42. 3(2b – 3) = 15

a. 1
b. 2
c. 3
d. 4

Find the ordered pair that is the solution for the following pairs of equations.

43. 3x + y = 7
8x – y = 4

a. (2, 1)
b. (0, -4)
c. (3, -2)
d. (1, 4)

44. x = 3y + 12
x + 4y = –2

a. (15, 1)
b. (6, -2)
c. (–2, 0)
d. (0, –4)

Simplify the following fraction expressions. (Find common denominator and combine.)

45. $\frac{3}{a}-\frac{5}{b}$

a. $\frac{3-5}{a-b}$
b. $\frac{3a-5b}{b-a}$
c. $\frac{3a-5b}{ab}$
d. $\frac{3b-5a}{ab}$

46. $\frac{5}{x}+\frac{3}{y}+\frac{1}{4}$

a. $\frac{20y+12x+xy}{4xy}$
b. $\frac{9x+7y+xy}{4xy}$
c. $\frac{5y+3x+1}{4}$
d. $\frac{9}{4xy}$

47. $\frac{3b}{4}+\frac{b}{6}+\frac{1}{b}$

a. $\frac{22b^2+24}{24b}$
b. $\frac{4b^2+1}{10b}$
c. $\frac{22b+12}{10b}$
d. $\frac{11b^2+12}{12b^2}$

48. $\frac{1}{a+3}-\frac{1}{3}$

a. $\frac{3a}{a+9}$
b. $\frac{a}{3a-9}$
c. $\frac{-a}{3a+9}$
d. $\frac{3}{a+9}$

Simplify the following. (Combine like terms.)

49. $-6\sqrt{3}+4\sqrt{3}+5\sqrt{3}$

a. $-2\sqrt{3}$
b. $9\sqrt{3}$
c. $-15\sqrt{3}$
d. $3\sqrt{3}$

50. $11\sqrt{7}+(-3\sqrt{7})-4\sqrt{7}$

a. $4\sqrt{7}$
b. $-7\sqrt{7}$
c. $10\sqrt{7}$
d. $-4\sqrt{7}$

51. $4\sqrt{25}+3\sqrt{16}$

a. $7\sqrt{41}$
b. 32
c. $12\sqrt{41}$
d. 21

52. $4\sqrt{18}+\sqrt{8}$

a. $12\sqrt{2}$
b. $6\sqrt{2}$
c. $14\sqrt{2}$
d. $6\sqrt{10}$

53. Sam's house sits on a lot that is rectangular. Which of the following equations could be used to find the area of his lot? Assume L = length and W = width.

a. L – W
b. L + W
c. $\frac{L}{W}$
d. LW

54. Sam wants to fence in the lot for his dog, Barney. Which of the following equations could be used to find the perimeter of Sam's lot so he'll know how much fencing to purchase? Assume L = length and W = width.

a. LW
b. (2L)(2W)
c. 2L + 2W
d. 2L – 2W

55. Sam is building a dog house for Barney. He is making the base (floor) 2 feet longer than the width. Which condition could he use to find the perimeter of the base? Assume L = length and W = width.

a. 4L – 4
b. L – 2
c. 2L – 4
d. 4L – 2W

Solve the following algebraic expressions for g.

56. $f = g^2$

a. f^2

b. $\frac{1}{2}f$

c. $\sqrt{f}$

d. $\frac{f}{2}$

57. $\frac{1}{4}f = \frac{3}{4}hg^2$

a. $\sqrt{\frac{f}{3h}}$

b. $\frac{16f}{2}$

c. $\sqrt{\frac{16f}{3h}}$

d. $\left(\frac{f}{3h}\right)^2$

All of the following are equivalent except one. Select the one that has a different value. Assume x > 0.

58. a. x + 1 < 3
b. x < 3 – 1
c. $\frac{x}{2} < 1$
d. 2x < 1

59. a. xy > z
b. x + y > z
c. y > $\frac{z}{x}$
d. z < xy

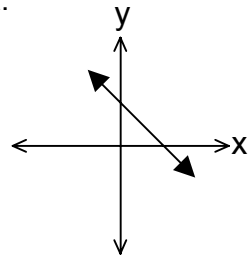
60. if 12 is ½ of a number (N), then N is equal to which of the fdllowing?
a. 12
b. 6
c. 24
d. ½

61. If 3 is 1/8 of a number (N), then N is equal to which of the following?
a. 3
b. 8
c. 16
d. 24

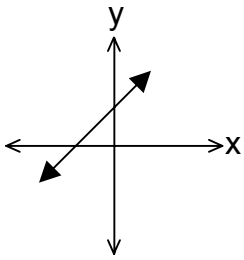
62. If 8 is 4/5 of a number (N), then N is equal to which of the following?
a. 10
b. 8
c. 40
d. 24

63. Which of the following is the graph for the line 2x + 2y = 4?

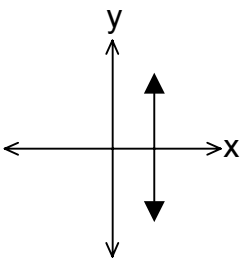
a.



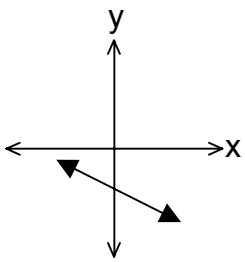
c.



b.

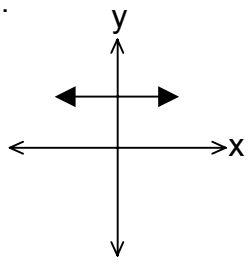


d.

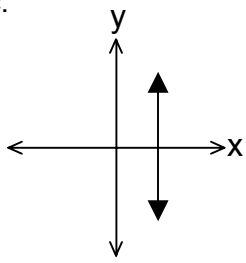


64. Which of the following is the graph for the line x = 3?

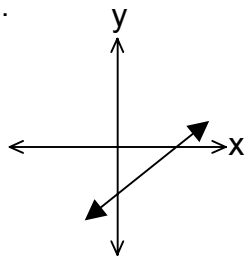
a.



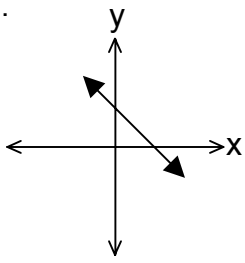
c.



b.

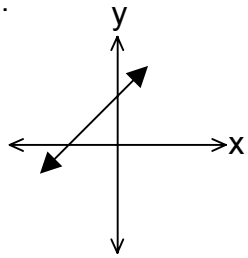


d.

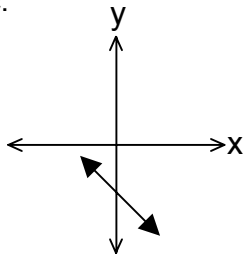


65. Which of the following is the graph for the line 3x = y?

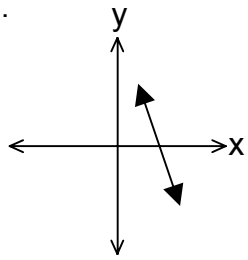
a.



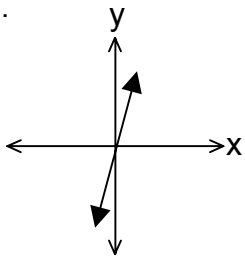
c.



b.



d.



Answers and Explanations

When combining numbers with like signs, add the numbers giving the answer the same sign as the addends. When combining numbers with different signs (adding or subtracting), the absolute value of the larger number subtracts the smaller number and the answer is given the sign of the larger number. Remember that subtracting a negative number [-(-), two negative signs together] changes to positive (+).

When multiplying or dividing an add number of negative signs in the problem makes the answer negative; no negative signs or an even number of negative signs makes the answer positive.

The order of operations is parenthesis, exponents, then multiplication and division, moving through the problem from left to right; and finally, addition and subtraction, also moving through the problem from left to right.

1. **A** $6 – (3 – 4) =$
$6 – (–1) =$
$6 + 1 = 7$
Operations within parenthesis are done first, subtracting a negative number changes the sign to positive.

2. **C** $–14 + (7 – 9) =$
$–14 + (–2) = –16$

3. **B** $–2(3) + 13 =$
$–6 + 13 = 7$

4. **A** $–7(2 – 3) + 7 =$
$–7(–1) + 7 =$
$7 + 7 = 14$

Combining like terms.

5. **A** $7x – 5x + y =$
$2x + y$

6. **B** $2(x + y) – 3x =$
$2x + 2y – 3x =$
$2y – x$ or $–x + 2y$

Insert value given into the problem and then solve

7. **D** when $x = –6$
$3x + 2 = 3(-6) + 2$
$-18 + 2 = –16$

8. **D** when $x = 7$
$2(x + 1) – 4 =$
$2(7 + 1) – 4 =$
$2(8) – 4 =$
$16 – 4 = 12$

9. **A** when $x = -8$
$$\frac{3x}{4} = \frac{3(-8)}{4} = \frac{-24}{4} = -6$$

Combining like terms

10. **A** $18x + 4x + 3y – 5y =$
$22x – 2y$

11. **C** $2x(3x + 4) + x(3 + 2x) =$
$6x^2 + 8x + 3x + 2x^2 =$
$8x^2 + 11x$

12. **A** $–(x + 3) + 3(x – 4) =$
$–x – 3 + 3x – 12 =$
$2x – 15$

13. **D** $3(3x + 2y) – 2(x – 2y) =$
$9x + 6y – 2x + 4y =$
$7x + 10y$

14. **A** $\frac{b}{3b+b^2}$

b can be factored from the numerator and the denominator

$$\frac{b(1)}{b(3+b)} = \frac{1}{3+b}$$

15. **A** $\frac{12x^2+4x}{6x^3}$

2x can be factored from the numerator and the denominator

$$\frac{2x(6x+2)}{2x(3x^2)} = \frac{6x+2}{3x^2}$$

16. **B** $10x^3 - 2x - 8$

2 can be factored from each expression in the problem

$2(5x^3 - x - 4)$

17. **D** $21x - 9x^2 - 3x^3$

3x can be factored from each expression in the problem

$3x(7 - 3x - x^2)$

18. **A** $|6 + 3| = |9| = 9$

19. **C** $|6 - 3| = |3| = 3$

20. **A** $|-6 - 3| = |-9| = 9$

21. **A** $|6 - (-3)| = |6 - 3| = |9| = 9$

22. **C** $|6| - |-3| = 6 - 3 = 3$

23. **C** $|-6| - |-3| = 6 - 3 = 3$

24. **B** $2^3 = 2 * 2 * 2 = 8$

25. **B** $3^3 = 3 * 3 * 3 = 27$

26. **A** $x^2 * x^4 = x^{2+4} = x^6$

When the same base number is raised to different exponents and multiplied, simply add exponents. Another way to look at it is:

$$x^2 * x^4 = (x * x) * (x * x * x * x) = x^6$$

27. **D** $x^{-3} * x^5 = x^{-3+5} = x^2$

28. **D** $(3x)^2 = 3^2x^2 = 9x^2$

Everything within the parenthesis is raised to the second power. Without the parenthesis just the x is raised.

29. **A** $\frac{a^{11}}{a^2} = a^{11-2} = a^9$

When the same base number is raised to different exponents and then divided, subtract the exponent from the denominator from the exponent in the numerator. Another way to look at it is:

$$\frac{a*a*a*a*a*a*a*a*a*a*a}{a*a}$$

30. **B** $3x + y = 9$

$\underline{-3x \qquad\quad -3x}$

$y = 9 - 3x$

To solve for y (isolate y), do the opposite operations, if something is added – subtract; if subtracted – add; if multiplied – divide; if divided – multiply. 3x was added to y, so we subtract 3x and to keep the equation balanced, we also have to subtract 3x from the 9, the other side of the equation.

31. **B** $3z = 6y + x$

$\underline{-x \qquad\quad -x}$ subtract x

$\frac{3z-x}{6} = \frac{6y}{6}$ divide by 6

$\frac{3z-x}{6} = y$

32. **D** 6e = 3de + 8
First, get the e's on the same side of the equation.

6e = 3de + 8
–3de –3de
6e – 3de = 8

Next, factor the e from the left side of the equation.

e(6 – 3d) = 8
Finally, divide to isolate e.
$\frac{e(6-3d)}{6-3d} = \frac{8}{6-3d}$

33. **D** $6a = \frac{3a+b}{c}$
$6ac = \frac{(3a+b)c}{c}$
6ac = 3a + b
– 3a = – 3a
6ac – 3a = b
$\frac{a(6c-3)}{6c-3} = \frac{b}{6c-3}$
$a = \frac{b}{6c-3}$

$\left.\begin{matrix} First \\ Outside \\ Indside \\ Last \end{matrix}\right\}$ FOIL

Multiply terms
(first + last)(first + last) or
(outside +inside)(inside + outside)

34. **C** (x – 3y)(x – 2y)
F = $x * x = x^2$
O = $x * -2y = -2xy$
I = $-3y * x = -3xy$
L = $-3y * -27 = 6y^2$
Combine like terms.
$= x^2 - 2xy - 3xy + 6y^2$
$= x^2 - 5xy + 6y^2$

35. **A** $(6x + 2y)^2$
= (6x + 2y)(6x + 2y)
= $36x^2 + 12xy + 12xy + 4y^2$
= $36x^2 + 24xy + 4y^2$

36. **D** (3x + y)(2x – 3y)
= $6x^2 – 9xy + 2xy – 3y^2$
= $6x^2 – 7xy – 3y^2$

37. **C** (3x – 1)(3x + 1)
= $9x^2 + 3x – 3x – 1$
= $9x^2 – 1$

Which terms are used to multiply (FOIL) for the following algebraic expressions?

38. **A** $5x^2 + 6xy + y^2$
(5x + y)(x + y) =
$5x^2 + 5xy + xy + y^2$
$5x^2 + 6xy + y^2$

39. **D** $x^2 + xy – 6y^2$
(x + 3y)(x – 2y) =
$x^2 – 2xy + 3xy – 6y^2$
$x^2 + xy – 6y^2$

To find the value of the variable, isolate the variable as explained above.

40. **C** $\frac{3x+6}{5} = 3$
multiply each side of the problem by 5
$5\frac{(3x+6)}{5} = 3(5)$
3x + 6 = 15 subtract 6 from both
– 6 – 6 sides

$\frac{3x}{3} = \frac{9}{3}$ divide both sides by 3

x = 3

41. **B** $\frac{18a-24}{3}=4$

multiply each side of the problem by 3

$3\frac{(18a-24)}{3}=4(3)$

$18a-24=12$ subtract 24 from

$\underline{\quad -24=-24}$ each side

$\frac{18a}{18} = \frac{36}{18}$ divide both sides by 18

a = 2

42. **D** $3(2d-3)=15$

$3\frac{(2d-3)}{3}=\frac{15}{3}$ divide both sides by 3

$2d-3=5$

$\underline{+3 \quad +3}$ add 3 to both sides

$\frac{2d}{2} = \frac{8}{2}$ divide both sides by 2

$d=4$

43. **D** 3x + y = 7 and
8x – y = 4

Using the first equation and solving for y (y = 7 – 3x), subtract 3x from both sides and plug this value into the second equation and solve for x.

8x – (7 – 3x) = 4
8x – 7 + 3x = 4
11x – 7 = 4
+7 +7 add 7 to both sides
$\frac{11x}{11}=\frac{11}{11}$
x = 1

Plug this value into the first equation and solve for y.

3(1) + y = 7
3 + y = 7
–3 –3 subtract 3 from both sides
y = 4

Solution in (x,y) form = (1, 4). These values solve both equations.

44. **B** x = 37 + 12 and
x + 4y = –2

Plug the value of x in the first equation into the second and solve for y.

(3y + 12) + 4y = –2
3y + 12 + 4y = – 2
7y + 12 = – 2 subtract 12 from
– 12 – 12 both sides
$\frac{7y}{7} = \frac{-14}{7}$ divide by 7
y = – 2

Plug this value into the equation and solve for x.

x = 3(–2) + 12
x = –6 + 12
x = 6
(6, –2) These values solve both equations.

To add or subtract fractions they must have a common denominator. To find a common denominator either multiply all the denominators or find a number or expression that all the denominators in the problem will divide into evenly (LCD). Whatever is done to the denominator must also be done to the numerator to keep the fraction equivalent to its original value.

45. **D** $\frac{3}{a}-\frac{5}{b}$

$\frac{3}{a}=\frac{3(b)}{a(b)}$ both multipled by b

$\frac{-5}{b}=\frac{5(a)}{b(a)}$ both multiplied by a

$\frac{3b-5a}{ab}$

46. **A** $\frac{5}{x}+\frac{3}{y}+\frac{1}{4}$

$\frac{5}{x}=\frac{5(y)(4)}{x(y)(4)}$

$\frac{3}{y}=\frac{3(x)(4)}{y(x)(4)}$

$\frac{1}{4}=\frac{1(x)(4)}{4(x)(4)}$

$\frac{5(4)(y)+3(4)(x)+1(x)(y)}{4(x)(y)}=$

$\frac{20y+12x+xy}{4xy}$

47. **D** $\frac{3b}{4}+\frac{b}{6}+\frac{1}{b}$

Common denominator will be 12b

$$\frac{3b}{4}=\frac{3b(3b)}{4(3b)}=\frac{9b^2}{12b}$$

$$\frac{b}{6}=\frac{b(2b)}{6(2b)}=\frac{2b^2}{12b}$$

$$\frac{1}{b}=\frac{1(12)}{b(12)}=\frac{12}{12b}$$

$$\frac{9b^2+2b^2+12}{12b}=\frac{11b^2+12}{12b}$$

48. **C** $\frac{1}{a+3}-\frac{1}{3}$

Common Denominator will be 3(a+3)

$$\frac{1}{a+3}=\frac{1(3)}{a+3(3)}$$

$$-\frac{1}{3}=-\frac{1(a+3)}{3(a+3)}$$

$$\frac{1(3)-1(a+3)}{3(a+3)}=$$

$$\frac{3-a-3}{3a+9}=\frac{-a}{3a+9}$$

49. **D** $-6\sqrt{3}+4\sqrt{3}+5\sqrt{3}$

The square root of three can't be factored easily. Numbers that are multiplied by the same square root (base) can be combined just like numbers multiplied by the same variable. ex. $(2x+3x+5x)=10x$

$$(-6+4+5)\sqrt{3}=$$

$$(-6+9)\sqrt{3}=3\sqrt{3}$$

50. **A** $11\sqrt{7}+(-3\sqrt{7})-4\sqrt{7}=$

$$(11+(-3)-4)\sqrt{7}=$$

$$(11-7)\sqrt{7}=4\sqrt{7}$$

51. **B** $4\sqrt{25}+3\sqrt{16}=$

Both 25 and 16 can be factored. 25 can be factored to $5*5$, or 5^2 and 16 to $4*4$ or 4^2. By definition a square root is a divisor of a quantity that when squared gives the quantity.

So, $4\sqrt{25}=4(5)$

And $3\sqrt{16}=3(4)$

$4\sqrt{25}+3\sqrt{16}=$

4(5) + 3(4) =

20 + 12 = 32

52. **C** $4\sqrt{18}+\sqrt{8}=$

$4\sqrt{9*2}+\sqrt{4*2}=$

$9=3*3$, perfect square

$4=2*2$, perfect square

$4(3)\sqrt{2}+2\sqrt{2}=$

$12\sqrt{2}+2\sqrt{2}=14\sqrt{2}$

53. **D** The formula for the area of a rectangle is length $*$ width or LW.

54. **C** The formula for the perimeter of a rectangle is length + length + width + width or 2(L) + 2(W)

55. **A** Area = 2L + 2W

W (width) = L (length) –2

Length is 2 feet more than the width or the width is 2 feet less than the length.

2(L) + 2(W) =

2L + 2(L – 2) =

2L + 2L – 4 = 4L – 4

56. **C** $f = g^2$

$\sqrt{f} = \sqrt{g^2}$

$\sqrt{f} = g$

57. **A** $\frac{1f}{4} = \frac{3}{4}hg^2$

$4\left(\frac{1}{4}f = \frac{3}{4}hg^2\right)$

$\frac{1f}{3h} = \frac{3hg^2}{3h}$

$\frac{f}{3h} = g^2$

$\sqrt{\frac{f}{3h}} = \sqrt{g^2}$

$\sqrt{\frac{f}{3h}} = g$

58. **D** > is the greater than symbol
< is the less than symbol

a is x + 1 < 3, x < 3 – 1, x < 2

b is x < 3 – 1, x < 2

c is $\frac{x}{2} < 1$, (2) $\frac{x}{2} < (2)1$, x < 2

d is 2x < 1, $\frac{1}{2}(2x) < \frac{1}{2}(1)$, $x < \frac{1}{2}$

59. **B** a is xy > z

b is x + y > z, x > z – y

c is y > $\frac{z}{x}$, xy > z

60. **C** $\frac{1}{2}N = 12$

$2\left(\frac{1}{2}N\right) = 2(12)$

$N = 24$

61. **D** $\frac{1}{8}N = 3$

$8\left(\frac{1}{8}N\right) = 8(3)$

$N = 24$

62. **A** $\frac{4}{5}N = 8$

$5\left(\frac{4}{5}\right)N = 5(8)$

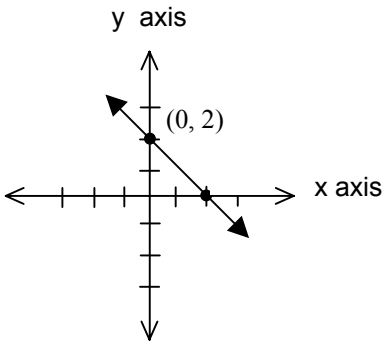
$\frac{4}{4}N = \frac{40}{4}$

$N = 10$

63. **A** 2x + 2y =4

x	y	
0	2	2(0) + 2y = 4, y = 2
2	0	2x + 2(0) = 4, x = 2

Plot the points on the table in a graph.



Draw a line to connect the two points

64. **C** x = 3, no matter what we choose for y, x will always be 3

65. **D** 3x = y

x	y	
0	0	3(0) = 0
1	3	3(1) = 3