

### Elementary Algebra Sample Test #1

1. What is the largest prime number less than 37?
2. On a number line graph the real numbers greater than or equal to -1 and less than 5.
3. Evaluate:  $|16 - 27|$
4. Reduce the following fraction:  $\frac{56}{96}$
5. Simplify:  $\frac{23}{25} \div \frac{46}{5}$
6. Simplify:  $15\frac{5}{6} + 11\frac{5}{8}$
7. 6% of 17,500 is what?
8. Evaluate:  $5^3 + 2(8 - 3 \cdot 2)$
9. Evaluate:  $\frac{(4^2 - 2) + 7}{5(2 + 4) - (3^2)}$
10. If  $x = 3$  and  $y = 4$ , evaluate:  $3(y + x^2)$
11. Find the Area of a circle whose radius is 9 in.. Use  $A = \Pi r^2$ .
12. Evaluate:  $6.8 + |8.6 + (-1.1)|$
13. Let  $x = 2$ ,  $y = -3$ , and  $z = -4$ . Evaluate:  $x + [6 + (y + z)]$
14. If  $x = -50$ ,  $y = -10$  and  $z = -5$ , evaluate:  $\frac{3xy + 2yz}{2(x + y)}$
15. Find the quotient:  $\frac{2(15)^2 - 2}{(-2)^3 + 1}$

16. If  $x = 4$  and  $y = -6$ , find :  $\frac{2x^2 + 2y}{x + y}$

17. Write an algebraic expression for: The quotient obtained when the product of  $x$  and  $y$  is divided by the sum of  $x$  and  $z$ .

18. Evaluate the product of  $x, y$  and  $z$  if  $x = 8, y = 4$ , and  $z = -2$ .

For #'s 19 and 20: use the following set of real numbers:  $\{-3, 0, \frac{1}{2}, 1.25, \sqrt{3}, 5\}$

19. List the Integers: \_\_\_\_\_

20. List the Rational Numbers: \_\_\_\_\_

For #'s 21 - 30: Match the following:

- |                                  |                                 |       |
|----------------------------------|---------------------------------|-------|
| A) $1/9$                         | 21) $a + 0 = a$                 | _____ |
| B) Closure property              | 22) $x + y$ is a real #         | _____ |
| C) Identity Property of addition | 23) $5 \cdot w = w \cdot 5$     | _____ |
| D) Additive Inverse Property     | 24) $12 + (-12) = 0$            | _____ |
| E) Distributive Property         | 25) Multiplicative Inverse of 9 | _____ |
| F) Commutative Prop. of Mult.    | 26) $4 + (5 + 6) = (4 + 5) + 6$ | _____ |
| G) Commutative Prop. of Add.     | 27) Additive Inverse of 9       | _____ |
| H) Associative Prop. of Mult.    | 28) $6(y - 2) = 6y - 12$        | _____ |
| I) Associative Prop. of Add.     | 29) $W + Z = Z + W$             | _____ |
| J) $-9$                          | 30) $x(yz) = (xy)z$             | _____ |

**Elementary Algebra Sample Test 2**

(2 pts.)1. Prove if **6** is a solution to:  $2x - 3 = 9$  ?

(4 points each) Problems 2 - 11: Solve each equation:

2.  $X - 11 = 22$

3.  $93 = 45 + Q$

4.  $4y = 108$

5.  $11x + 17 = -5$

6.  $96T + 23 = -265$

7.  $8y - 4 = 4y$

8.  $\frac{x}{15} = 3$

9.  $\frac{Z}{9} - 5 = -1$

10.  $\frac{v - 2}{5} = 1$

11.  $\frac{r + 7}{3} = 4$

(5 points each) Problems 12-17: Solve the equation:

12.  $\frac{K}{11} + 9 = 6$

13.  $\frac{w}{5} - \frac{1}{2} = \frac{3}{2}$

14.  $18.6x + 7.2 = 1.5(48 - 2x)$

15.  $5(c + 2) = 9c$

16.  $2(3z + 4) = 2(3z - 2) + 13$

17.  $3(a + 2) = 2(a - 7)$



**Elementary Algebra Sample Test 3**

(6 pts.)1. Plot and label each point on the rectangular coordinate system:

A(2,5)	D(-2,-4)
B(4,-5)	E(5,0)
C(-3,4)	F(0,-3)

(6 pts.) 2. Find the coordinates of each point on the graph:

(5 pts.each) Problems 3 and 4: Graph each line by finding x and y intercepts:

3.  $4x + 5y = 20$

4.  $2x - 3y = 6$

(5 pts.each) Problems 5 and 6: Graph each line by using the slope-intercept form :

5.  $y = \frac{-3}{2}x + 1$

6.  $y = 2x - 1$

m= \_\_\_\_\_

m= \_\_\_\_\_

b= \_\_\_\_\_

b= \_\_\_\_\_

(1 pt.) 7. Graph the line :  $y = 4$

(2 pts) 8. Write  $(4ab)^3$  in expanded form.

(2 pts) 9. Write  $16x^3y^2$  in expanded form

(2 pts) 10. Evaluate this expression:  $2(4^3 - 3^4)$ .

(3 pts each) Problems 11 - 16: Simplify by writing answers with positive exponents only:

11.  $5c^2c^3c^4$

12.  $(-4x^3)(-2x)(x^3)$

13.  $(x^4y^2)^5$

14.  $(8f^3g^2h)^2$

15.  $\frac{(2y^2z^3)^3}{16(y^3z^1)^5}$

16.  $\left(\frac{3x^2y^1z^3}{6x^3y^5z^2}\right)^2$

(3 pts each) Problems 17 - 24. Simplify the following: (remember **no** negative exponents)

17.  $y^4y^2$

18.  $(a^3 b^{-3})^2$

19.  $2(x^0y^4)^3$

20.  $\left(\frac{x^{-2}z^3}{x^{-3}z^2}\right)^2$

21.  $\left(\frac{2a^4b^{-3}}{a^{-4}b^3}\right)^4$

22.  $\frac{y^{4m}y^{3m}}{y^{2m}y^{2m}}$

23.  $\frac{8x^4y^{-3}z^3}{6x^{-3}y^7z^3}$

24.  $\frac{5d(6d)^0}{10d^2}$

(2 pts each) Problems 25 -28: Write in Standard Scientific Notation:

25. .000136

26. 937,000

27.  $739 \times 10^{-2}$

28.  $.437 \times 10^{-3}$

(2 pts.) 29. Express  $8.45 \times 10^{-6}$  as a regular number.

(2 pts.) 30. Express  $1.23 \times 10^5$  as a regular number.

Problems 31 - 32: Calculate and express answer as a regular number **and** in scientific notation:

(3 pts each)

31.  $\frac{(14,400,000)(0.48)}{96,000,000}$

32.  $\frac{96,000}{(.0000005)(12,000,000)}$

(3 pts.) 33. Convert  $5.87 \times 10^{12}$  miles into feet. (Hint 5280 feet = 1 mile)

### Elementary Algebra Sample Test 4

1. Indicate the degree of the given polynomial:  $4r^2s^3t^3 - 5r^2s^8$
2. Add the polynomials:  $(6x^2 - 7y + 11) + (3x^2 + 2y - 6)$
3. If  $f(x) = x^2 - 2x + 3$ , find  $f(4)$ .
4. Graph the function:  $f(x) = 3x^2 - 4$  (Build a table first)
5. Multiply:  $-5y(y^2 - 2y - 6)$
6. Multiply:  $(3w + 2)(5w - 1)$
7. Multiply :  $(2a + 5)(4a^2 + 2a + 3)$
8. Multiply and simplify:  $2a(ab^2 - b) - 3b(a + 2ab) + b(b - a + a^2b)$
9. Solve the equation:  $(x - 5)(x - 2) = (x + 2)(x - 2)$
10. Find the prime factorization of 224
11. Factor out the GCF:  $32xyz - 48x^2yz + 36xy^2z^2$
12. Factor out the GCF:  $-3r^2st + 6rt - 12st^2$  (Realize first term is negative)
13. Factor out GCF **FIRST**, then continue factoring:  $5z^3 + 45z^2 + 100z$
14. Factor out GCF **FIRST**, then continue factoring:  $-3x^3 + 27x^2 - 60x$

Factor each Polynomial:

- |                        |                      |
|------------------------|----------------------|
| 15. $49z^2 - 121$      | 16. $32w^2 - 18$     |
| 17. $y^2 + 11y - 26$   | 18. $x^2 - 1x - 20$  |
| 19. $x^2 + 5x - 6$     | 20. $x^2 - 10x + 21$ |
| 21. $x^2 + 12x + 32$   | 22. $z^2 + 11z + 18$ |
| 23. $Q^2 + 2Q - 48$    | 24. $D^2 - 5D - 24$  |
| 25. $x^3 - 6x^2 - 27x$ |                      |