

Elementary Algebra questions for placement test practice

1. Simplify: $2x + 3(x - 2y) - 5(3x - 7y)$
2. Evaluate: $-3a^2 - 4ab + b$ when $a = -2$ and $b = 5$
3. Simplify: $(-2x^3y^5z^0)^4$
4. Multiply: $(2x - y)(x + 3y)$
5. Simplify: $(2c - 5)^2$
6. Multiply: $(3y - 1)(y^2 + 5y - 4)$
7. Simplify: $(-7b^3 + 5b^2 - 6) - (3b^3 - 4b - 1)$
8. Simplify: $\frac{24x^2y^5}{18x^3y}$
9. Simplify: $\frac{-3a^{-4}b^5}{12a^2b^3}$ (express answer with positive exponents only)
10. Factor: $4x^2 - 36$
11. Factor: $4x^2 + 12x - 40$
12. Factor: $6x^4 + 15x^3 - 9x^2$
13. Factor: $xy - 7x + 2y - 14$
14. Factor: $4x^2 - 4x + 1$
15. Solve: $3(4b + 1) - 5(2 - 6b) = 36b + 1$
16. Solve: $\frac{3y}{8} - \frac{y}{2} = 2$
17. Solve: $3w - 7 \geq 2(4 - w)$
18. Solve: $\frac{5}{x + 3} = \frac{4}{x + 1}$
19. Solve: $x^2 + 5x = -6$
20. Solve: $2x^2 - 6x = 0$
21. One leg of a right triangle is two more than twice the smaller leg. If the hypotenuse measures 13 meters, find the length of the smaller leg.
22. Two brothers who are 230 miles apart start driving towards each other at the same time. The younger brother travels 5 miles per hour faster than the older brother, and the brothers meet after 2 hours. Find the speed traveled by each brother.
23. Find the value(s) where the expression is undefined: $\frac{4}{1 - 2x}$

24. Simplify: $\frac{2n^2 - 9n + 4}{2n^2 - 5n - 12}$

25. Divide: $\frac{9x^2 - 9y^2}{6x^2y^2} \div \frac{3x + 3y}{12x^2y^5}$

26. Subtract: $\frac{x^2 - 3}{x^2 + 2x - 8} - \frac{x - 4}{x + 4}$

27. Solve: $x - \frac{32}{x} = 4$

28. Find the slope of the line segment that joins $(-3, 7)$ and $(4, -1)$.

29. Write the equation of the line with a slope of $-\frac{1}{2}$ that passes through $(6, -1)$.

30. Determine if the graph of the following would produce lines that are parallel, perpendicular

or neither: $f(x) = 5x + \frac{1}{2}$
 $g(x) = -2 + 5x$

Answers to Elementary Algebra questions for placement test practice

1. $29y - 10x$

2. 33

3. $16x^{12}y^{20}$

4. $2x^2 - 5xy - 3y^2$

5. $4c^2 - 20c + 25$

6. $3y^3 + 14y^2 - 17y + 4$

7. $-10b^3 + 5b^2 + 4b - 5$

8. $\frac{4y^4}{3x}$

9. $\frac{-b^2}{4a^6}$

10. $4(x-3)(x+3)$

11. $4(x+5)(x-2)$

12. $3x^2(2x-1)(x+3)$

13. $xy - 7x + 2y - 14$

14. $(2x-1)^2$

15. $b = \frac{4}{3}$

16. $y = -16$

17. $w \geq 3$

18. $x = 7$

19. $x = -2, -3$

20. $x = 0, x = 3$

21. 5 meters

22. older 55 mph, younger 60 mph

23. $x \neq \frac{1}{2}$

24. $\frac{2n-1}{2n+3}$

25. $6y^3(x-y)$

26. $\frac{6x-11}{(x-2)(x+4)}$

27. $x = -4, 8$

28. $m = -\frac{8}{7}$

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

30. parallel