

College Algebra Pre-Test

The following are a sample of the minimum prerequisite skills needed to succeed in a college algebra course. If you miss more than two problems on this test, you should probably take college algebra in a face-to-face format and not take it on line, or you should take Intermediate Algebra.

Follow the directions below to answer each question. Show all work.

1. Expand the following:

a) $(x + 2)(x^2 - 2x + 4)$

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

2. Simplify, leave all exponents positive.

a) $(2x^2)^3 \left(\frac{x^5}{x^9} \right)$

b) $(3x)^{-2}(9x^8)$

3. Simplify, follow the order of operations. No answers should contain complex fractions.

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

b) $\frac{2x + 7}{4x - 3} + \frac{x + 3}{x - 4}$

c) $\frac{\frac{2x + 3}{x - 5}}{\frac{x + 7}{x}}$

4. Factor the following polynomials

a) $x^2 - 5x + 6$

b) $2x^2 + 5x - 12$

c) $3x^3 - 12x$

5. Solve each of the following equations for all values of x. Use symbolic methods and give exact solutions.

a) $8x + 5 = x + 3$

b) $\frac{2}{3}(4x + 7) + 3 = \frac{1}{5}(7x - 2)$

c) $yx + 3y = 4x - 2$

d) $(3x + 2)(x - 4) = 0$

e) $x^2 + 2x + 5 = 0$

f) $\sqrt{2x + 1} = x - 1$

6. Let $2x + 3y = 6$

a) Solve the equation for y and state the slope and y-intercept.

b) Determine the x-intercept.

c) Sketch the graph.

7. A ladder is leaning against a wall so that the foot of the ladder is 10 feet from the base of the wall. The ladder is 2 feet longer than the height it reaches up the wall. How far up the wall does the ladder reach?