1. a. When multiplying polynomials, you should multiply each term of the first polynomial to each term of the second polynomial and then ____________________.

b. If \( P \) is equal to a second degree polynomial and \( Q \) is equal to a third degree polynomial, what is the degree of \( P + Q \)?

c. If \( P \) is a second degree polynomial and \( Q \) is a third degree polynomial, what is the degree of \( P \) multiplied by \( Q \)?

d. The method that shows you how to multiply two polynomials is known as the __________ method.

e. If you subtract \( 5x^2 - 4x + 6 \) from \( 3x^2 - 2x + 8 \) what is left?

2. a. If the length of a rectangle is \( x + 9 \) and the width is \( x + 2 \), what is the formula for the area in terms of \( x \)?

b. The area of a circle is \( \pi r^2 \) where \( r \) is the radius and \( \pi \) is an irrational number equaling close to 3.14. What is the area of the circle if \( r \) is equal to 7?

c. A rectangle has sides equaling \( y + 4 \) and \( y - 2 \), what is the area in terms of \( y \)?

d. The area of a circle is \( \pi r^2 \) where \( r \) is the radius and \( \pi \) is an irrational number equaling close to 3.14. What is the area of the circle if \( r \) is equal to 3.5?

e. If \( P = 2x + 3 \) and \( Q = 4x + 5 \), what is \( P \) multiplied by \( Q \)?

3. a. What is the area of a square with sides equaling \( x + 6 \) in terms of \( x \)? What is the area if \( x \) equals 4?

b. What is the volume of a cube in terms of \( x \) if the sides are equal to \( (x + 1) \)?

c. What is the volume of a cube in terms of \( x \) if the sides are equal to \( (x - 1) \)?

d. The height of a box is 3 less than its length and the length is 5 more than its width. Express the volume in terms of length \( L \).

e. What is \( (x^2 + 2)^2 \)?