

In algebra problems, you will have to factor a number within an algebraic expression. Factoring means finding and separating numbers that have been multiplied. It is the process of looking for the factors (numbers) that are multiplied to produce a given number.

For example, to find the factors of 36, determine what numbers, when multiplied together, result in the answer 36. The factors of 36 are:

$$\begin{array}{lll} 1 \times 36 & \text{and} & -1 \times -36 \\ 2 \times 18 & \text{and} & -2 \times -18 \\ 3 \times 12 & \text{and} & -3 \times -12 \\ 4 \times 9 & \text{and} & -4 \times -9 \\ 6 \times 6 & \text{and} & -6 \times -6 \end{array}$$

So the factors of 36 are:

$$1, 2, 3, 4, 6, 9, 12, 18, 36 \text{ and } -1, -2, -3, -4, -6, -9, -12, -18, \text{ and } -36.$$

Simplify (find the product of) the following expressions. Select the best answer and type it on the line provided.

1. $(p - 5)(p + 4)$ _____

- a. $p^2 - 1p + 20$
- b. $p^2 + 1p + 20$
- c. $p^2 + 1p - 20$
- d. $p^2 - 1p - 20$

2. $6(n + 3) - (5 + n)$ _____

- a. $5n + 13$
- b. $5n - 13$
- c. $11n + 3$
- d. $11n - 3$

3. $(y + 8)(y + 5)$ _____

- a. $y^2 - 13y + 40$
- b. $y^2 - 13y - 40$
- c. $y^2 + 13y + 40$
- d. $y^2 + 13y - 40$

4. $(b - 6)(b - 3)$ _____

- a. $b^2 + 9b - 18$
- b. $b^2 + 3b - 18$
- c. $b^2 - 3b + 18$
- d. $b^2 - 9b + 18$

5. $9x + 4 - 2x - 2$ _____

- a. $11x - 6$
- b. $7x + 2$
- c. $7x - 2$
- d. $7x + 6$

6. $3(2y - 1)(y + 6)$ _____

- a. $6y^2 + 33y - 18$
- b. $6y^2 - 33y - 18$
- c. $3y^2 + 11y - 6$
- d. $3y^2 - 11y + 6$