

1) Answer: C

Explanation: To multiply $x + 3$ by $x - 1$, we will use the FOIL method.

First Terms: $x(x) = x^2$

Outer Terms: $x(-1) = -x$

Inner Terms: $3(x) = 3x$

Last Terms: $3(-1) = -3$

Combining what we have obtained above:

$$x^2 - x + 3x - 3$$

$$x^2 + 2x - 3$$

Combining like terms

Thus, the answer is $x^2 + 2x - 3$

2) Answer: A

Explanation: Let us apply the steps on how to square a binomial:

Square the first term: $(2x)^2 = 4x^2$

Multiply the product of the first and second term by 2: $(2x)(-z)(2) = -4xz$

Square the last term: $(-z)^2 = z^2$

Combining what we have obtained above: $4x^2 - 4xz + z^2$

3) Answer: B

Explanation: Since we are multiplying binomials with the same terms but with opposite signs, then the result will be a difference of two squares.

Given: $(a - p)(a + p)$

Squaring the first term: $(a)^2 = a^2$

Squaring the second term: $(p)^2 = p^2$

Putting a minus sign in between what we have obtained above: $a^2 - p^2$

The answer is $a^2 - p^2$

4) Answer: D

Explanation: To factor a quadratic trinomial with $a = 1$:

Step 1: Write the binomials with the first terms as the square root of the leading term of the given quadratic trinomial.

$$(x + \underline{\quad})(x + \underline{\quad})$$

Step 2: Think of the factors of the third term whose sum is equal to the second term. The third term of $x^2 - x - 12$ is -12 . We think of the factors of -12 such as the sum of these factors is the second term (which is -1).

Here are the factors of -12 together with their sums:

-4 and 3 (sum is -1)

4 and -3 (sum is 1)

12 and -1 (sum is 11)

-12 and 1 (sum is -11)

6 and -2 (sum is 4)

-6 and 2 (sum is -4)

From the list of factors, it is clearly seen that -4 and 3 are the factors of -12 with a sum of -1 .

Step 3: Write the numbers you have obtained from Step 2 as the second terms of the binomials

$$(x + (-4))(x + 3) = (x - 4)(x + 3)$$

Hence, the answer is $(x - 4)(x + 3)$.

5) Answer: A

Explanation: We can factor the given expression $2a^2b - 6ab$ using its GCF.



Answer Key

Special Products and Factoring

Let us determine the GCF of the terms first:

$$2a^2b = 2 \cdot a \cdot a \cdot b$$

$$6ab = 2 \cdot 3 \cdot a \cdot b$$

The GCF is $2 \cdot a \cdot b = 2ab$

Dividing each term by the GCF:

$$\frac{2a^2b}{2ab} = a$$

$$\frac{6ab}{2ab} = 3$$

Thus, the factored form of the expression is $2ab(a - 3)$.



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