

FACTORS AND PRODUCTS - ASSIGNMENT

Multiple Choice (10 marks)

_____ 1. Determine the product of $(x + 2)(x - 6)$.

- a. $x^2 - 12x - 12$
b. $x^2 + 4x - 12$

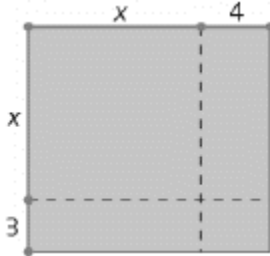
- c. $x^2 - 4x - 12$
d. $x^2 - 12x - 4$

_____ 2. Expand $(5x + 2)^2$.

- a. $25x^2 + 20x + 10$
b. $25x^2 + 20x + 4$

- c. $25x^2 + 10x + 4$
d. $25x^2 + 4$

_____ 3. Which of the following expressions does the diagram represent?



- a. $x^2 + 12x + 7$
b. $x^2 + 7x + 12$

- c. $2x^2 + 7x + 12$
d. $x^2 + 7x + 7$

_____ 4. What is the greatest common factor (GCF) for the following set of terms: $12x^2y^2$, $-4x^3y$, $-8x^2y^2$, $16x^2y^3$?

- a. $-4x^2y^2$
b. $4x^2y$

- c. $-4x^2y$
d. $4x^2y^2$

_____ 5. What is the factored form of the expression $5x^2 - 55$?

- a. $5x^2(x - 11)$
b. $5x(x - 11)$

- c. $5x(x^2 - 11)$
d. $5(x^2 - 11)$

_____ 6. Which of the following values of k makes the trinomial $x^2 + kx + 81$ a perfect square trinomial?

- a. 8
b. 81

- c. 9
d. 18

_____ 7. Which expression is an example of a difference of squares?

- a. $x^2 - 21$
b. $4x^2 + 16$

- c. $8x^2 - 64$
d. $25x^2 - 81$

_____ 8. Which of the following is a factor of $6x^2 - 7x - 10$?

- a. $3x + 2$
b. $6x - 5$

- c. $3x - 2$
d. $6x + 5$

_____ 9. Identify the pair of integers that has a product of -24 and a sum of 10 .

- a. -12 and -2
b. -12 and 2

- c. 12 and 2
d. 12 and -2

_____ 10. Which of the following is not a factor of $3x^2 - 9x - 30$?

- a. $x - 5$
b. $x - 10$

- c. 3
d. $x + 2$

Numeric Response (2 marks)

1. When $(2x - 5)^2$ is expanded and simplified into the form $ax^2 - bx + c$, where a , b , and c are positive integers, then the value of $a + b + c$ is _____.

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2. If $x^2 - 18x + k$ is a perfect square trinomial, then the value of k is _____.

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Completion (3 marks)

- In order to factor the expression $2x^2 + 9x + 9$ into $(x + 3)(2x + 3)$, the method of _____ can be used.
- The expression $x^2 + 6x + 9$ is a(n) _____ trinomial.
- The expression $a^2 - b^2$ is called a(n) _____ of _____.

Short Answer (6 marks)

1. Factor each of the following expressions:

a) $6x^2 - 5x - 4$

b) $x^2 - 4x - 21$

c) $18a^2 + 39a - 15$

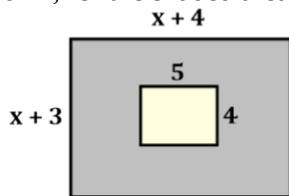
d) $x^4 - 16$

e) $4x^2 + 25 - 20x - 5x$

f) $3x^2 - 25x + 42$

Written Response (4 marks) Show all of your work for full marks.

1. Brittany is checking whether the pool she wants to buy will fit in her backyard. The pool with the patio measures 4 m by 5 m. Refer to the diagram below.
- a) Determine the area of the shaded region in simplified form, then write an algebraic expression, ***in factored form***, for the shaded area. **(2 marks)**



- b) When Brittany measures her yard, she notices that $x = 3$, but she needs 20 m^2 for her dog to run. Will the pool fit in her yard? **(1 mark)**

- c) Determine a simplified expression for the perimeter of Brittany's backyard. **(1 mark)**