

Name: _____

2005, Mathematics - Grade 10

Question 5: Multiple Choice

Patterns, Relations, and Algebra



Which of the following is a factor of the polynomial below?

$$4x^3y - 8x^2y^2 + 10xy^3$$

- A. $4y^2$
 - B. $2x^2$
 - C. $2xy$
 - D. x^2y^2
-

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Question 34: Multiple Choice

Patterns, Relations, and Algebra



Which of the following is equivalent to the expression below?

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

- A. $3x^3 - 2x - 6$
 - B. $3x^3 + x - 6$
 - C. $3x^3 - x^2 - 2x - 6$
 - D. $3x^3 - 4x^2 + x - 6$
-

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Question 28: Multiple Choice

Patterns, Relations, and Algebra



Tina solved a quadratic equation and found the solutions to be $-\frac{3}{2}$ and 6. Which of

the following is equivalent to the quadratic equation that Tina solved?

- A. $(x - 6)(3x + 2) = 0$
- B. $(x - 6)(2x + 3) = 0$
- C. $(x + 6)(2x - 3) = 0$
- D. $(x + 6)(3x - 2) = 0$

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Question 13: Multiple Choice

Patterns, Relations, and Algebra



If the denominator is not zero, which of the following is equivalent to the expression below?

$$\frac{6x^3 - 12x^2 - 9x}{3x}$$

- A. $6x^3 - 12x^2 - 3$
- B. $2x^2 - 12x^2 - 9x$
- C. $6x^2 - 4x - 3$
- D. $2x^2 - 4x - 3$

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Question 35: Multiple Choice

Patterns, Relations, and Algebra



Which of the following expressions is equivalent to the one shown below?

$$(x - 3)(2x + 5)$$

- A. $2x^2 - x - 15$
- B. $2x^2 - 15$
- C. $2x^2 + 11x - 15$
- D. $2x^2 + 2$

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Question 32: Multiple Choice

Patterns, Relations, and Algebra



Mr. Johnson purchased 20 concert tickets for a total of \$225. The concert tickets cost \$15 for adults and \$10 for children under 12.

How many tickets for children under 12 did Mr. Johnson purchase?

- A. 5
- B. 9
- C. 15
- D. 18

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Question 24: Multiple Choice

Patterns, Relations, and Algebra

Which of the following is one of the factors of the expression below?

$$4x^2 - 25$$

- A. $(4x - 5)$
- B. $(2x + 1)$
- C. $(4x - 1)$
- D. $(2x - 5)$



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Question 14: Short Answer

Patterns, Relations, and Algebra

Find **all** the values of x that satisfy the following equation.

$$x^2 + 2x - 15 = 0$$



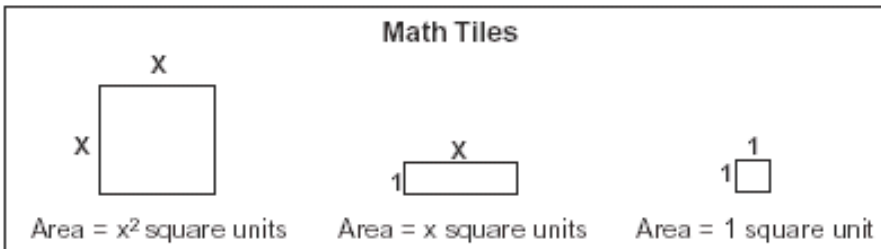
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2001, Mathematics - Grade 10

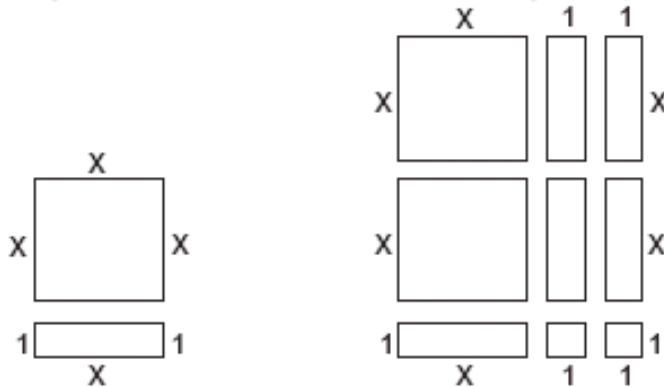
Question 13: Open Response

Patterns, Relations, and Algebra

Use the figure below to answer question 13.



In the figures below, math tiles were used to build rectangular arrays to represent each of the quadratic expressions.



$x(x + 1)$ or $x^2 + x$

$(x + 2)(2x + 1)$ or $2x^2 + 5x + 2$

a. Show how to build rectangular arrays, if possible, for each of the following expressions using the three math tiles.

$2x^2 + 3x + 1$ $3x^2 + 2x$ $3x^2 + 6x + 5$

b. How can you determine if a rectangular array can be built for an expression?

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Question 12: Short Answer

Patterns, Relations, and Algebra

What is the missing term in the quadratic expression below?

$(2x - 3)(x + 4) = 2x^2 + \underline{\hspace{1cm}} - 12$

