Math 10 Foundations LG 3 Quiz A Answer Sheet

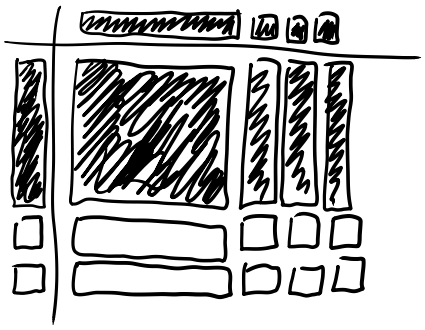
Instructions /20

1. Mark your quiz.
2. Complete the "How Did I Do?" sheet
3. Return this sheet to Mrs. Craig.

Bring your marked quiz and the "How Did I Do?" page to your teacher for a quick interview.

Expectation #1: Explain how multiplication of binomials is related to area and to the multiplication of two-digit numbers.

1. Show how you would multiply $(x + 3)(x - 2)$ with algebra tiles. (2 marks)



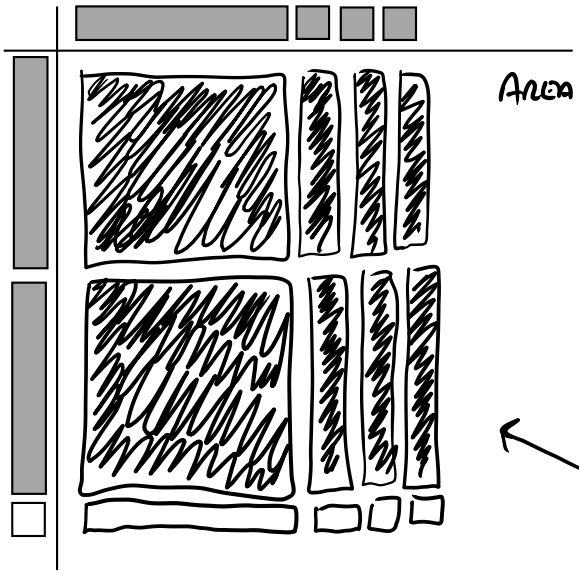
(1 MARK)

$(x+3)(x-2) = x^2 + 3x - 2x - 6$

$= x^2 + x - 6$ (1 MARK)

*NOTE: IT DOESN'T MATTER WHICH FACTOR YOU PUT ON THE TOP & SIDE. YOU SHOULD STILL GET THE SAME ANSWER.

2. What are the dimensions of this algebra tile model and what product does the algebra tile model show? (2 marks)



THE DIMENSIONS ARE $x+3$ BY $2x-1$.

AREA $= (x+3)(2x-1) = 2x^2 + 6x - x - 3$

$= 2x^2 + 5x - 3$

(1 MARK)

(1 MARK)

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Expectation #2: Multiply polynomials.

3. Multiply using the distributive property. Combine like terms where possible. (2 marks each)

a) $(x+1)(x+4)$

$= x^2 + 4x + x + 4$

$= x^2 + 5x + 4$

b) $(x-2)^2$

$= (x-2)(x-2)$

$= x^2 - 2x - 2x + 4$

$= x^2 - 4x + 4$

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

$= 2x^2 + 10x - 3x - 15$

$= 2x^2 + 7x - 15$

d) $(4m-2k)(3m-5k)$

$= 12m^2 - 20mk - 6mk + 10k^2$

$= 12m^2 - 26mk + 10k^2$

e) $(2x-3)(5x^3+2x^2-7)$

$= 10x^4 + 4x^3 - 14x - 15x^3 - 6x^2 + 21$

$= 10x^4 - 11x^3 - 6x^2 - 14x + 21$

f) $(2x-3)(x+2) - (3x+4)^2$

$= (2x^2 + 4x - 3x - 6) - (3x+4)(3x+4)$

$= (2x^2 + x - 6) - (9x^2 + 12x + 12x + 16)$

$= (2x^2 + x - 6) - (9x^2 + 24x + 16)$

$= 2x^2 + x - 6 - 9x^2 - 24x - 16$

$= -7x^2 - 23x - 22$

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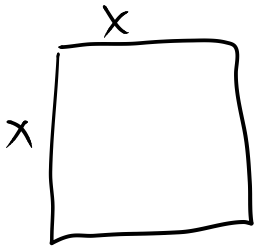
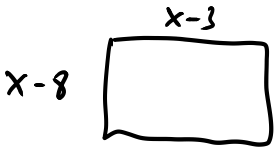
4. A square rug of length *x* cm is cut to fit a doorway. If 8cm was cut from the length and 3cm was cut from the width, write an expression for the area of the trimmed rug. Multiply and then combine like terms. (2 marks)



ORIGINAL RUG



TRIMMED RUG

$(x-8)(x-3)$

$= x^2 - 3x - 8x + 24$

$= x^2 - 11x + 24$

5. Ted multiplied the expression $(3x-2)(5x-2)$. When he checked his answer, he found that he had made a mistake.

$$(3x-2)(5x-2) = 3x(5x-2) - 2(5x-2) \quad \checkmark$$
$$= 15x^2 - 6x - 10x \ominus 4$$
$$= 15x^2 - 16x - 4$$

THIS SHOULD BE + BECAUSE A NEGATIVE TIMES A NEGATIVE IS A POSITIVE.

Indicate where Ted made his mistake and complete the correction for him. (2 marks)

$(3x-2)(5x-2) = 15x^2 - 6x - 10x + 4$

$= 15x^2 - 16x + 4$

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