

$$\text{TOTAL} = \frac{\quad}{60} = \frac{\quad}{100}$$

563306 – Mathematics – Unit 2 – Algebraic Expressions
Practice Test - Version B

1

 Given the 3 polynomials:

4	0
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2	What is the area of a square if each one of its sides measures $(6a - 3b)$ cm?	4 0
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3	To calculate the area of this piece of land, Emily did the following:		4 0
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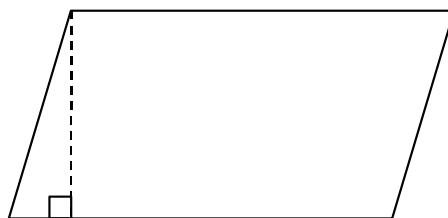
4 To calculate the volume of a prism Matt did the following operation:

4	0
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A) $30x^2 - 5x - 75$ C) $25x - 75$
B) $30x^2 + 95x - 75$ D) $150x^2 - 25x - 375$

- 5 To determine the length of the parallelogram on the right, Lucy will divide its area by its height:

$$(12xy^2 - 4xy + 20x^2y) \div 4xy$$



4 | 0

What result should she get?

- A) $3y - 1 + 5x$ C) $3y + 5x$
B) $3y^2 - 1 + 5x^2$ D) $-xy + 5x$

- 6 The rule of a polynomial is $P(x) = 4x^2 - 10x + 12$.

4 | 0

What is the value of this polynomial if $x = -5$?

- A) $P(-5) = 462$ C) $P(-5) = 62$
B) $P(-5) = 162$ D) $P(-5) = -38$

PART 2: SHORT ANSWERS (EACH QUESTION IS WORTH 4 MARKS)

- 7 Simplify the following algebraic expression:

4 | 3 | 2 | 1 | 0

$$\frac{81x^4 - 45x^3 + 27x^2}{9x^2} - (3x - 1)^2$$

The simplified expression is _____.

- 8 Simplify or expand each expression below.

4 | 3 | 2 | 1 | 0

- a) $(4a + 5b) - (2a - 3b)$ b) $(5x + 3)(2x - 1)$

- a) _____ b) _____

- 9 Simplify each expression below.

4 | 3 | 2 | 1 | 0

- a) $\frac{30x^5y^8 - 18x^8y^4}{6x^2y^4}$ b) $\frac{(m^3n^5)^5}{m^{-3}n^2}$

- a) _____ b) _____

- a)

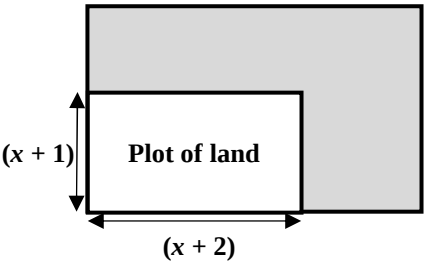
$12a^4 - 16a^3 + 8a^2$
- b)

$6x(x - 7) + 5(x - 7)$
- a)

- b)

PART 3: EXTENDED ANSWERS (EACH QUESTION IS WORTH 10 MARKS)

Its length is increased by 4 meters and its width by x metres, creating the shaded part illustrated in the diagram below.



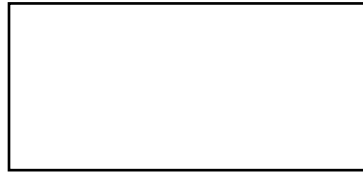
What simplified algebraic expression can be used to represent the area of the shaded part?
Show all your work.

Answer: The simplified algebraic expression for the area of the shaded part is _____ m^2

12

The perimeter of a rectangular room shown in the diagram below is given by the polynomial $(20x + 14)$. The length of that room is $(7x + 9)$.

10	9	8	7	6	5	4	3	2	1	0
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$(7x + 9)$

What simplified algebraic expression represents the area of that room?

Show all your work.

Answer: The simplified algebraic expression for the area of the room is _____.

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1

D

3

D

5

A

2

C

4

A

6

B

7

The simplified expression is $x + 2$

8

a) $2a + 8b$

b) $10x^2 + x - 3$

9

a) $5x^3y^4 - 3x^6$

b) $m^{18}n^{23}$

10

a) $4a^2(3a^2 - 4a + 2)$

b) $(x - 7)(6x + 5)$

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Dimensions of the big rectangle

$Length = x + 2 + 4 = x + 6$

$Width = x + 1 + x = 2x + 1$

Area of the big rectangle

$A = l \times w$

$A = (x + 6)(2x + 1)$

$A = 2x^2 + x + 12x + 6$

$A = 2x^2 + 13x + 6$

Area of the plot of land

$A = l \times w$

$A = (x + 2)(x + 1)$

$A = x^2 + x + 2x + 2$

$A = x^2 + 3x + 2$

Area of shaded part

$A = (2x^2 + 13x + 6) - (x^2 + 3x + 2)$

$A = 2x^2 + 13x + 6 - x^2 - 3x - 2$

$A = x^2 + 10x + 4$

Answer: The simplified algebraic expression representing the area of the shaded part is $x^2 + 10x + 4 \text{ m}^2$.

12

Finding the width of the room

$2width = Perimeter - 2(length)$

$2w = (20x + 14) - 2(7x + 9)$

$2w = 20x + 14 - 14x - 18$

$2w = 6x - 4$

$w = (6x - 4) \div 2$

$w = 3x - 2$

Area of the room

$A = l \times w$

$A = (7x + 9)(3x - 2)$

$A = 21x^2 - 14x + 27x - 18$

$A = 21x^2 + 13x - 18$

Answer: The simplified algebraic expression representing the area of the room is $21x^2 + 13x - 18$.