Unit 2 Review
Do your work on a separate piece of paper. Show all work unless stated otherwise.

Part A

1. Simplify.

    a) $a^4 \cdot a^6$ b) $a^8 \div a^{-2}$ c) $\left(a^5\right)^2$ d) $a^{-15} \cdot a^5$

2. Simplify

    a) $\dfrac{45y^6}{9y^2}$ b) $\left(2x^4\right)\left(4x^2\right)$ c) $\left(-5m^4\right)^3$ d) $-6a^2 \times (2a)^3$

Part B

3. Simplify **using power rules**.

    a) $\left(-3a^4b\right)\left(-2a^2b^3\right)$ b) $\left(-2a^5b^2\right)^3$ c) $\left(\left(a^5\right)^3 a^2\right)^3$

    d) $\dfrac{2cd^3 \times 2^3 c^6}{(2c^2d)^3}$ e) $\dfrac{\left(2^3 x^7\right)^2 (2x)^3}{\left(2x^2\right)^4}$ f) $\dfrac{(-3x^2y^3)^2(-2xy^3)^3}{(6xy^2)^2}$

Part C [Marked on Levels]

4. Johnny tried to evaluate $-[(-5)^{73} \times (-5)]$ on his calculator but alas it gave an error. All he wants to know is whether the answer is positive or negative. Can you help him? Explain in detail how you know (no marks for a guess).

5. Create a question using THREE exponent laws that has an answer of x^5.

Part A

1. Complete the following table

Polynomial	# of terms	Name
$2a^2 - 3ab + 4b^2$		
$7x^4y - 3$		

2. Simplify using Algebra tiles (shaded = negative). Explain your solution

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

3. Simplify as much as possible.

a) $3x - 9 + 2x + 7$

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

Part B

4. Simplify as much as possible.

a) $2a^2 - 3ab - 6 + 4b^2 + 7 - (-2ab) - 3a^2$

b) $5(3x - 2) - 2(7x - 3)$

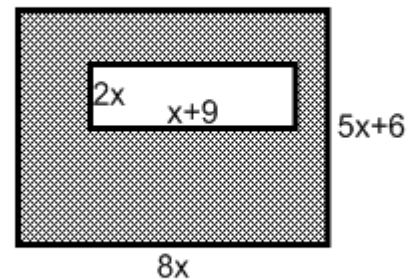c) $5xy^2(2x^3 - x^2) - 2y(7x^4y - 3x^3)$

d) $7x - ((-3x^2 - y) - 2(2x^2 - y))$

e) $\dfrac{3}{4}\left(\dfrac{1}{3}x - 8\right) + \dfrac{1}{2}\left(4x - \dfrac{2}{3}\right)$

f) $\left(-2a^2b^3\right)^3 - 3a\left(5a^5b^9 - 4ab^4\right)$

5.a) Create a simplified polynomial expression to represent the shaded area for the figure(show all your work.

b) Given that x is equivalent to 2 cm determine the area of the shaded region.

6. Complete the table

Initial Polynomial	Polynomial to be added	Final Polynomial
$7x^2 - 4xy + 2$	$-20x^2 - 5xy + 12$	
$-3a^3b + 3ab - 1$		$2a^3b - 9$
	$8x^2 + 6x - 4$	$2x^2 - 5x + 2$

Part C [Marked on levels]

7. Using your knowledge of polynomials and as much variety as you can, (add, subtract, multiply, algebra tiles, word problems) create several expressions whose result is $4x^2 + x - 7$ The goal is to show an in-depth understanding of polynomials.
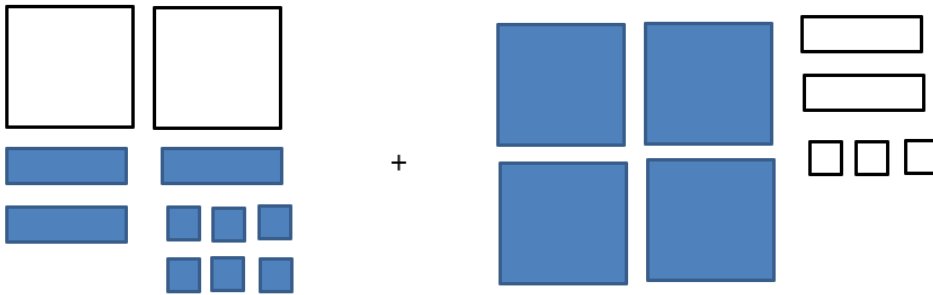
Solutions:

Page 1

1. a) a^{10} b) a^{10} c) a^{10} d) $\frac{1}{a^{10}}$ 2. a) $5y^4$ b) $8x^6$ c) $-125m^{12}$ d) $-48\,a^5$ 3. a) $6a^6b^4$ b) $-8b^{15}b^6$ c) a^{51}

d) $2c$ e) $32x^9$ f) $-2x^5y^{11}$ 4. Negative 5. Answers will vary

Page 2

1. (3, trinomial) (2, Binomial) 2.

= $-2x^2 - x - 3$ (when zero pairs cancelled out)

3. a) $5x-2$ b) $8x^3-4x^2+4x-8$ 4. a) $-a^2-ab+4b^2+1$ b) $x-4$ c) $-4x^4y^2 - 5x^3y^2 + 6x^3y$ d) $7x^2 + 7x -$
4 e) $\frac{9}{4}x - \frac{19}{3}$ f) $-23a^6b^9 +12a^2b^4$ 5. a) $38x^2+30x$ b) 212 cm^2

6. Table row 1 13 $x^2-9xy + 14$, row 2 $5a^3b - 3ab - 8$, row 3 $-6x^2 - 11x + 6$ 7. Answers will vary