

1 | Survival Guide

**DAY 1 – SIMPLIFY ALGEBRA**

1.  $3x^3 \cdot 4x^4$

2.  $\frac{8x^6}{12x^4}$

3.  $(3xy^3)^4$

4.  $2x^2 - 4x + x^2 + 5x + 1$

5.  $-x(7x^2 + 1) - 2(2x^2 + 2x + 1)$

Evaluating

6.  $-2(x^2 - 2x + 2)$  if  $x = -1$

**DEFINITIONS:**

**Coefficient**

**Power**

**Terms**

**Power of Power**

**Simplify**

**Evaluate**

Unit 4 – Polynomials

Name: \_\_\_\_\_

**DAY 2 – MULTIPLYING POLYNOMIALS**

7.  $2x^2(x - 10 + x^2)$

8.  $(3x - 1)(x + 7)$   
Algebra

Picture

9.  $2(5x)(4x)$

10.  $(2x - 7)^2$

**Multiplying monomial with polynomial**

**Multiplying two binomials**

**Do not distribute coefficient if**

**Do not distribute exponent if**

**DAY 3 – COMMON FACTORING - GCF**

1.  $33x^3y^5 + 24x^2y^2 - 3x^2y^4$

2.  $-18x + 27$

3.  $-7x^3y^3 + 18x^2y^2 - 9xy$

4. Mr. Walker owns a large area of land for farming. The area of his land is  $50x^2 + 60x$ . He wants to buy his neighbour's land to increase his farming area. His neighbour's land has an area of  $20x^2 + 30x$ . If Mr. Walker buys the land, he would own a large rectangular area.

a) Write a quadratic expression that represents the total farming area if the 2 pieces of land were joined together.

b) Factor the expression and determine the dimensions of the new piece of land.

c) What are the actual dimensions of the land if  $x = 2$  m?

**Finding GCF with variables**

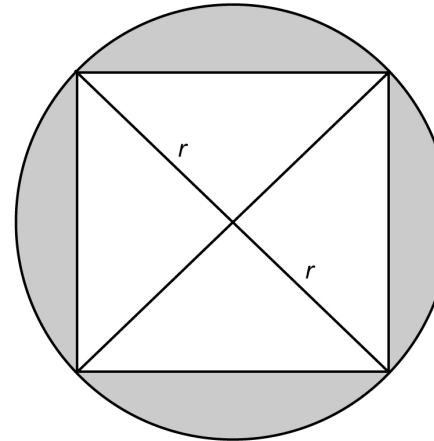
**Factoring steps**

**Proper way of recording**

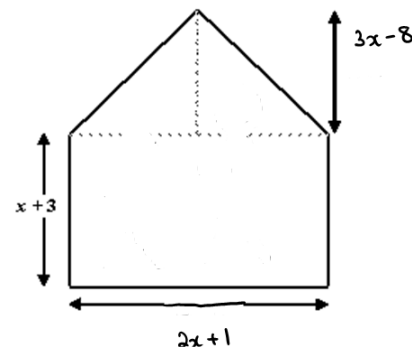
**If negative is first?**

**CATCH UP DAY**

5. Find the expression of the shaded region in factored form



6. Write an expression for the area of the shape. Expand and simplify



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**DAY 4 – SIMPLE TRINOMIAL FACTORING – SUM & PRODUCT**

<p>For <math>x^2 + bx + c</math>  <b>Sum # is</b>  <b>Product # is</b></p> <p><b>Proper way to record</b></p>	<p><b>Factoring steps</b></p>
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1.  $x^2 + 12x + 11$   
Algebra

Picture

2.  $x^2 + 8x + 15$

3.  $x^2 + 7x - 18$

4.  $x^2 - x - 12$

5.  $x^2 - 5x + 6$

**If there are no negatives**

**If product number is negative**

**If product number is positive**

Unit 4 – Polynomials

Name: \_\_\_\_\_

**DAY 5 – BINOMIAL FACTORING – DIFFERENCE OF SQUARES**

6.  $25x^2 - 16y$

7.  $4x^2 - 25$

8.  $100r^2 + 81s^2$

9.  $3x^3 - 75x$

10.  $x^4 - 256y^4$

**Can factor if**

**Factoring Steps**

**If powers are not even or numbers can't be square rooted**

**Check if need to continue**

#### 4 | Survival Guide

##### CATCH UP DAY

1.  $x^3 + 7x^2 + 12x$

2.  $6x^2 - 48x + 72$

3.  $12c^2 - 26c - 16$

4.  $-0.1d^2 + 0.5d + 0.6$

5. The area of the gym floor is represented by  $x^2 - x - 20$ . The perimeter is 38 m. Find the actual dimensions of the gym.

**If the highest power is not even**

**If there is a number on  $x^2$   
-is part of GCF**

**-is not part of GCF**

**-is a decimal**

#### Unit 4 – Polynomials

##### DAY 6 MIX OF PRACTICE

Expand

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

7.  $3(2x-1)^2$

Factor completely

8.  $-3x^2 - 18x$

9.  $x^2 - x - 42$

10.  $x^2 - 7x + 10$

11.  $49 - 4x^2$

12.  $4x^3 + 6x^2 - 30x$

13.  $100x^2 - 81$

14.  $-2x^2 - 12x - 16$

15.  $2x^2 - 50$

Name: \_\_\_\_\_

1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144, 169, 196, 225, 256, ...

Expand - multiply  
- remove brackets  
F.O.I.L.

Factor - divide  
- split up into brackets

(ex)  $2(x-3)(7x+1)$   
 $= 2(7x^2 + x - 21x - 3)$   
 $= 14x^2 + 2x - 42x - 6$   
 $= 14x^2 - 40x - 6$

OR  $2(x-3)(7x+1)$   
 $(2x-6)(7x+1)$

	2x	-6	
7x	14x <sup>2</sup>	-42x	add like terms
+1	2x	-6	

$\therefore 14x^2 - 40x - 6$

Try G.C.F 1<sup>st</sup>  
 - divide by common factor

(ex.)  $5\left(\frac{10x^2}{5} - \frac{5x}{5} + \frac{15}{5}\right)$   
 $= 5(2x^2 - 1x + 3)$

(ex.)  $-6x\left(\frac{-18x^2}{-6x} + \frac{24x}{-6x}\right)$   
 $= -6x(3x - 4)$

