

# St Andrew's Academy

# **Mathematics Department**



# COURSE 2 BLOCK 7

# PRE-ASSESSMENT LEARNING EVALUATION



	Red	Amber	Green	<b>Revision Exercise</b>
NUM	BER			
<ul> <li>I can use non-calculator strategies to performance calculations using the four operations.</li> </ul>	orm O	0	$\bigcirc$	
<ul> <li>I can confidently use the negative number and answer problems in context.</li> </ul>		$\bigcirc$	$\bigcirc$	Number Exercise 1
<ul> <li>I can add and subtract with negative numbers:</li> <li>e.g. a) -5 + 4 = -1</li> <li>b) 3 - 7 = -4</li> <li>c) 3 + (-2) = 1</li> <li>d) 5 - (-2) = 7</li> <li>e) (-4) + (-8) = -12</li> <li>e) (-1) - (-9) = 8</li> </ul>	0	0	0	• Number Exercise 2
<ul> <li>I can multiply positive and negative number together:</li> <li>e.g. a) (-6) x 5 = -30 b) (-2) x (-7) = 14</li> </ul>	ers	$\bigcirc$	$\bigcirc$	• Number Exercise 3
<ul> <li>I can divide positive and negative number together:</li> <li>e.g. a) (-16) ÷ 8 = -2 b) (-12) ÷ (-3) = 4</li> </ul>	s O	C	0	• Number Exercise 3 Extra Practice on mixed questions Exercise 4 and 5



	Red	Amber	Green	Revision Exercise
ALGEBRA				
• I can remove brackets and simplify e.g. a) $5(x + 4) - 7$ = $5x + 20 - 7$ = $5x + 13$	0	$\bigcirc$	0	Algebra Exercise 1 Q1
b) $8(x + 2) - 3(2x - 5)$ = $8x + 16 - 6x + 15$ = $2x + 31$	0	$\bigcirc$	$\bigcirc$	Algebra Exercise 1 Q2
• I can solve equations with letters and numbers on both sides: e.g. $8x + 4 = 2x + 40$ -4 $-48x = 2x + 36-2x - 2x6x = 36\div 6 \div 6x = 6$	0	0	0	• Algebra Exercise 2
• I can solve equations with brackets: e.g. a) $4(y-3) = 20$ 4y-12 = 20 +12 $+124y = 32\div 4 \div 4Y = 8$	0	0	0	• Algebra Exercise 3
b) $5(3x-2) = 4(x + 3)$ 15x - 10 = 4x + 12 +10 + 10 15x = 4x + 22 -4x - 4x 11x = 22 $\div 11 \div 11$ X = 2	0	$\bigcirc$	0	• Algebra Exercise 3
• I can solve equations involving fractions: e.g. a) $\frac{1}{2}x - 5 = 2$ +5 + 5 $\frac{1}{2}x = 7$ $x^2 \qquad x^2$ x = 14	0	$\bigcirc$	0	• Algebra Exercise 4 Q1



b) $\frac{2}{3}x + 2 = 8$ -2 -2	• Algebra Exercise 4 Q1
$\frac{2}{3}x = 6$ $x3 \qquad x3$ $2x = 18$ $\div 2 \qquad \div 2$ $x = 9$ $c) \frac{4y+5}{3} = 7$ $x3 \qquad x3$ $4y+5 = 21$ $-5 \qquad -5$ $4y = 16$ $\div 4 \qquad \div 4$ $Y = 4$	Algebra Exercise 4 Q2 + 3

































COURSE 2 BLOCK 7 REVISION



# NUMBER REVISION

#### Exercise 1

1. Read the following thermometers and state the temperature:



- 2. Put these temperatures in order, the lowest first.  $2^{\circ}$ C,  $-8^{\circ}$ C,  $-1^{\circ}$ C,  $-6^{\circ}$ C,  $-4^{\circ}$ C
- 3. Which of these temperatures is lowest? i) -4°C or -2°C ii) -16°C or -17°C
- 4. The temperature in Paisley one day in December was 6°C. The temperature fell by 8 degrees by 1 am. What is the temperature now?
- 5. What is the difference in temperature between -4°C and 14°C?
- 6. What number is 10 up from -37.
- 7. What number is 8 down from -23.
- 8. The temperature in Moscow was -12°C at 4am. By 2pm the temperature had risen by 7°. What was the temperature at 2pm?
- 9. The temperature in Russia one afternoon was -7°C. By night fall the temperature had fallen by 11°. What was the temperature at night fall?

#### Exercise 2

- 1. State which of following statements are true or false. a) 8 > 3 b) -2 < 5 c) 0 < -1 d) -9 > -4
- 2. Complete the following calculations: a) 2-7 b) (-3) +8 c) (-5) -9 d) 12-20

e) (-18) + 6	f) (-13) + 7	g) 3 + (-10)	h) 10 + (-4)
i) 0 + (-18)	j) (-6) + (-8)	k) (-2) + (-16)	l) (-19) + (-20)

3.	Complete t	the following	calculations:
<b>.</b>	00111010101	into rono mig	

a) 4–18	b) (-6) – 15	c) 7-(-10)	d) 0-(-19)
e) (-8) – (-3)	f) (-17) – (-5)	g) (-2) – (-11)	h) (-39) – (-20)
i) (-6) – (-4)	j) (-10) — (-9)	k) (-20) – (-15)	l) (-50) – (-30)

Complete the following calculations:

a) 35 ÷ (-7)	b) (-2) x 9	c) (-30) ÷ 5	d) (-9) x (-8)
e) 7 x (-4)	f) (-12) × 5	h) (-54) ÷ (-9)	i) (-48) ÷ 6
k) (-8) x (-4)	l) 7 x (-13)	m) (-100) ÷ (-20)	n) 50 ÷ (-2)

#### Exercise 4

1.	Complete the following calculations:	
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a) 7–19	b) (-5) + 12	c) (-4) x 8	d) 1 + (-16)
e) (-8) + (-15)	f) (-9) – (-14)	g) (-63) ÷ 9	h) (-28) – (-10)
i) (-14) × (-6) =	j) (-8) – 13	k) (-15) + (-12)	l) 120 ÷ (-2)
m) (-49) ÷ 7	n) (-17) – (-21)	0) 2 + (-14)	p) (-6) x 5
q) 7 – (-10)	r) 32 ÷ (-8)	s) (-4) + (-9)	t) (-1) — (-17)
∪) 13 x (-4)	∨) (-66) ÷ (-11)	w) (-18) – (-12)	x) 5 + (-16)
y) (-9) x (-7)	z) (-2) + (-11)		

### Exercise 5

Complete the following calculations:

1. (-7) + 8	2. 3 – 10	3. 4 + (-18)
4. (-9) × 6	5. 6 – (-17)	6. (-3) – (-5)
7. 63 ÷ (-7)	8. (-4) × (-8)	9. (-25) – (-12)
10. 2 + (-19)	11. (-54) ÷ 6	12. (-10) + (-36)
13. 5 x (-13)	14. (-42) ÷ (-7)	15. (-50) – (-28)

## **ALGEBRA REVISION**

#### Exercise 1

- 1. Remove the brackets and simplify:
  - (a) 2(q + 4) + 3 (b) 3(e + 1) + 6 (c) 5(t + 4) + 2 (d) 6(u + 2) 7(e) 4(p + 2) - 7 (f) 80v + 10(7v + n) g) 12 - 2(x - 5)

2. Remove the brackets and simplify:

(a) 3(m + 2) + 4(m + 1)	(b) 5(b + 2) + 2(b + 4)	(c) $8(c + 1) + 3(c + 6)$
(d) 2(8t-2) + 5(2t + 4)	(e) 6(4-5e) + 7(2 + 4e)	(f) $4(2x + 1) - 3(x + 2)$
(g) 9(x + 1) – 6(x – 2)	(h) x(8x – 2) – 2(3x – 8)	

#### Exercise 2

Solve the following equations:

1. $x + 3 = 9$	2. $2x = 6$	3. $4 - x = 5$
4. $2x + 3 = 13$	5. $2x = 1$	6. $3x = 2$
7. $4x = 20$	8. $4x - 1 = 19$	9. $4x = -20$
10. $2x = -6$	11.4x = -8	12. $4x = -1$
13. $2x + 3 = -5$	14. $2x - 3 = 5$	15. $2x - 3 = x + 2$
16. $7x - 3 = 2x + 12$	17. 7 <i>y</i> -	-8 = 5y + 2
18. $4x + 5 = 2x - 11$	19. 5 <i>x</i> –	-6 = 2x - 15
20. $x + 2x = -15$	21. 3 <i>x</i> -	-5 = 4x - 7
22. $2x + 7 = 5x - 3$	23. $2x$	+7 = 12 - 3x
24. $6y - 2 = 8y - 5$	25.8-	4x = 10 - 2x

#### Exercise 3

Remove the brackets and solve the following equations:

a) 
$$3(x-5) = 12$$
 b)  $5(2x-3) = 15$  c)  $5(3-2x) = 30$  d)  $3(2x-4) = 8$   
e)  $7x + 2 = 5(x-2)$  f)  $22 - 3x = 2(x+6)$  g)  $13 - 3x = 4(x-2)$   
h)  $x - 18 = 2(2x-3)$  i)  $4(2x-3) = 3x - 27$  j)  $3(x-2) + 2(x+4) = 17$   
(k)  $5(2x+1) + 6(1-2x) = 1$  (l)  $2(3x+1) + 3(x-4) = 4x + 5$   
(m)  $4(3x-6) + 5(x+1) = 5x + 5$  (n)  $4(x+5) - 2(x+1) = 30$   
(o)  $2(4x+1) - 3(x-3) = x + 35$ 

- 1. Solve the following equations: a)  $\frac{1}{2}x + 6 = 10$  b)  $\frac{1}{4}y - 5 = 2$  c)  $\frac{1}{7}a + 3 = -4$  d)  $\frac{2}{3}x - 4 = 6$ e)  $\frac{3}{5}x + 3 = 9$  f)  $\frac{3}{8}x + 10 = 19$
- 2. Solve the following equations:

(a) 
$$\frac{x+1}{2} = 3$$
 (b)  $\frac{w-4}{3} = 2$  (c)  $\frac{x-2}{7} = 6$  (d)  $\frac{w+9}{4} = 8$ 

(e) 
$$\frac{w-25}{3} = -7$$
 (f)  $\frac{x+2}{4} = -1$  (g)  $\frac{w+20}{8} = -2$  (h)  $\frac{x-9}{4} = -2$ 

3. Solve the following equations:

(a) 
$$\frac{3x+5}{2} = 7$$
 (b)  $\frac{5x-12}{3} = 11$  (c)  $\frac{4x+2}{6} = 5$  (d)  $\frac{10x+3}{4} = 4$ 

(e) 
$$\frac{5x-8}{2} = 10$$
 (f)  $\frac{8x+4}{5} = 12.8$  (g)  $\frac{2x+13}{3} = 1$  (h)  $\frac{3x-4}{7} = -4$ 

## LENGTH, PERIMETER AND AREA REVISION

#### Exercise 1



#### Exercise 2

1. Calculate the perimeter of the following shapes:



#### Exercise 3

1. Calculate the area of the following rectangles:



2. Calculate the area of the following squares:



#### 3. Calculate the area of the following triangles





#### Exercise 4

1. Calculate the area of the following shapes:





1. Calculate the circumference of each of the following circles:







### Exercise 6

Calculate the area of the following shapes: 1.





2. Calculate the shaded area in each of the



#### Exercise 7

e)

1. Calculate the volume of each of the following shapes:



#### Exercise 8

- 1. Find the volume of a water tank that is 80cm long, 40cm wide and 20cm high. Give your answer in litres.
- William is painting the side of his house.
   He has 8 litres of paint and each litre of paint covers 16m<sup>2</sup>.
   Does William have enough paint



Copy and complete the table:

Ŀ	Name of shape	What shapes are the faces?	Which net?
$\Delta$	Triangular prism	2 triangles, 3 rectangles	с
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$\overline{\bigcirc}$			

#### Exercise 10

1. Calculate the surface area of each of the following shapes:



2. Calculate the surface area of each of the following triangular prisms:



3. Use the nets below to find the surface area of the cylinders.



4. Find the surface area of the cylinders, to 2 decimal places:

