Cycle 1 mock exam preparation: securing a grade 4 and aiming for a grade 5 (foundation)

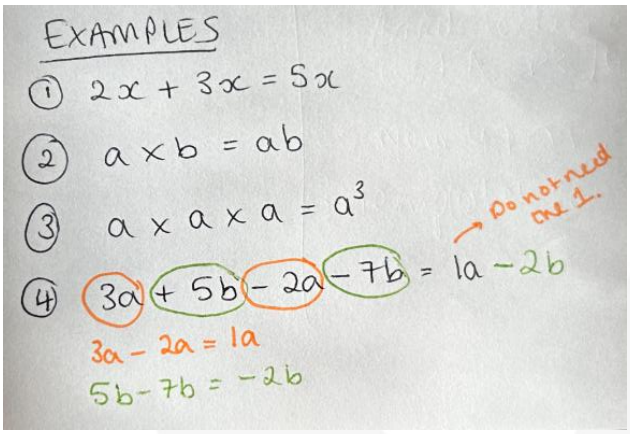
W/C Monday 22 September

Revision timetable:

	Monday 22 September	Tuesday 23 September	Wednesday 24 September	Thursday 25 September	Friday 26 September	Saturday 27 September	Sunday September 28
Securing grade 4: foundation	• Collecting like terms	• Expanding and factorising single brackets	• Solving linear equations (one and two step)	• Order of operations	• Percentages of amounts	• HCF / LCM	• Angle facts

Notes

- 20 marks = 20 minutes (time yourself!)
- Show all of your working out
- Use the link to CorbettMaths to look at videos to support



1. Simplify $3x + 4x - 2x$

(1 mark)

2. Simplify $n + n + n$

(1 mark)

3. Simplify $8c + 3d - c + 2d$

(2 marks)

4. Simplify $2x - 3y - 6x - 4y$

(2 marks)

5.

a) Simplify $\frac{6h}{3}$

(1 mark)

b) Simplify $a \times b \times c$

(1 mark)

c) Simplify $4 \times 3x$

(1 mark)

6.

a) Simplify $2a \times 3b$

(1 mark)

b) Simplify $2p \times 2p$

(1 mark)

c) Simplify $\frac{7x + 5x}{4}$

(1 mark)

8.

a) Simplify $a^2 + a^2 + a^2$

(1 mark)

b) Simplify $2rs - 5rs + 4rs$

Simplify $4a + 2 - 7a + a - 6$

(1 mark)

c)

(2 marks)

9.

a) Simplify $n + n + n - n$

(1 mark)

b) Simplify $3xy + 2xy - xy$

(1 mark)

c) Simplify $4a + 3b - a + 3b + 6$

(2 marks)

Example: $5(x+3)$ × x $+3$ 5 | $5x$ | $+15$	$7x-14$ factors of $7x$ and -14 = 7 $x-2$ 7 | $7x$ | -14 $7(x-2)$
$a(a-2)$ × a -2 a | a^2 | $-2a$	y^2+2y factors y^2 and $2y$ = y $y+2$ y | y^2 | $+2y$ $y(y+2)$

1. $6(c-8)$

a) Expand $4(x+3)$

(1 mark)

b) Expand $7(2x+7)$

(1 mark)

c) Expand $8(3s-2)$

(1 mark)

d) Expand $3(2y-4)$

(1 mark)

2.

a) Expand $p(p-3)$

(1 mark)

b) Expand $5a(a-6)$

(2 marks)

3. Expand and Simplify $4(g+5)+3(g-2)$

(3 marks)

4. Expand and Simplify $6(y+3)-5(y-4)$

(3 marks)

5.

a) Factorise $4t+20$

(1 mark)

b) Factorise $3y+12$

(1 mark)

c) Factorise $16q+8$

(1 mark)

6.

a) Factorise $18x+24$

(1 mark)

b) Factorise $15y-6$

(1 mark)

7.

a) Factorise x^2-9x

(1 mark)

b) Factorise a^2-10a

(1 mark)

Example

$3x + 4 = 25$

$-4 \quad -4$

$3x = 21$

$\div 3 \quad \div 3$

$x = 7$

$\frac{m}{6} - 2 = 7$

$+2 \quad +2$

$\frac{m}{6} = 9$

$\times 6 \quad \times 6$

$m = 54$

1. Find the missing number

a) $16 - \square = 9$

b) $16 = 19 - \square$

(1 mark)

2.

a) Solve $x + 6 = 18$

(1 mark)

b) Solve $m - 5 = 8$

(1 mark)

c) Solve $20 - m = 12$

(1 mark)

d) Solve $4a = 24$

(1 mark)

e) Solve $\frac{d}{2} = 6.5$

(1 mark)

f) Solve $h + h + h = 12$

(1 mark)

g) Solve $a + a + a + a = 24$

(1 mark)

3. Solve $4c + 6 = 18$

(2 marks)

4. Solve $3y + 9 = 24$

(2 marks)

5. Solve $3h - 5 = 12$

(2 marks)

6. Solve $6w = 4w + 9$

(2 marks)

7. Solve $\frac{y}{3} - 5 = 4$

(2 marks)

8. Solve $\frac{d+3}{4} = 5$

(2 marks)

Example	When multiplying and dividing, do these in the order you read them in.
Brackets ( )	$5 \times 4 \div 2$ $20 \div 2$ $= 10$ $\quad$ $5 \div 4 \times 2$ 1.25×2 $= 2.5$
Indices $\square^2$	
Divide ÷	
Multiply ×	When you see a question with an + and a - do these in the order you read them in.
Add +	$7 + 3 - 4$ $10 - 4$ $= 6$ $\quad$ $7 + 4 - 3$ $11 - 3$ $= 8$
Subtract −	

1. Work out 3 x 5 – 4

(1 mark)

2. Calculate (8 – 2) x 3

(1 mark)

3. Calculate 7 x 2 – 3 x 4

(1 mark)

4. Work out 6 + 15 ÷ 3

(1 mark)

5. Calculate $5 + 4^2$

(1 mark)

6. Work out $3 + 10 \times 2^3$

(2 marks)

7. Calculate 5 + 2 x 9 ÷ 3 (2 marks)

8. Work out $2 + (5 + 3)^2$

(2 marks)

9. Write brackets ( ) in these statements to make each statement correct. You may use more than one pair of brackets.

a) 4 x 5 + 3 = 32

(1 mark)

b) 3 + 4 x 5 + 6 = 47

(1 mark)

c) 2 + 7 x 3 + 4 = 51

(1 mark)

d) 9 – 7 x 3 + 5 = 16

(1 mark)

10. Joey thinks the answer to $16 + 4 \times 2$ is 40
Albert thinks the answer to $16 + 4 \times 2$ is 24

Who is correct?
Explain your answer.

(2 marks)

11. Work out $\sqrt{81} - (9 - 7) \times 3$

(3 marks)

Example	
12% of 480 10% = 48 1% = 4.8 1% = 4.8 12% = 57.6	Increase 120 by 3% 10% = 12 1% = 1.2 1% = 1.2 1% = 1.2 3% = 3.6 120 + 3.6 = 123.6

1. Work out 10% of £95

(1 mark)

2. Work out 50% of 1200 grams

(1 mark)

3. Work out 1% of 200 litres

(1 mark)

4. Find 45% of 820

(2 marks)

5. There are 30 students in a class.
10% of the students are left handed.

How many students in the class are left handed?

(1 mark)

6. Work out 75% of 300

(2 marks)

6. Freya says "50% of 30 is equal to 30% of 50."

Show Freya is correct.

(2 marks)

7. Logan has two tubs of beads.

5% of the 600 beads in Tub A are yellow.

4% of the 900 beads in Tub B are yellow.

Work out the total number of yellow beads in the tubs.

(4 marks)

8. David is paid £34000 per year.
He is going to get a 3% increase in the amount of money he is paid.

Work out how much money David will be paid per year after the increase

(3 marks)

9. Richard gets a bonus of 30% of £130
Connor gets a bonus of £40

Work out the difference between the bonus Richard gets and the bonus Connor gets

(3 marks)

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Saturday 27 September

Example

"Factors" are the numbers we can **multiply together** to get another number: $2 \times 3 = 6$

Factor Factor

The factors of 6 are: 1, 2, 3, 6

A multiple is the result of **multiplying** a number **by an integer. Think of its times tables**

The first five multiples of 9 are: 9, 48, 27, 36, 45

1.

12		28	100
	40		
		64	
35	6	18	38

From the box above, choose two numbers that:

(a) have a common factor of 10

..... and .....

(1)

(b) have a common multiple of 24

..... and .....

(1)

(c) have a common factor of 7

..... and .....

(1)

(d) have a common multiple of 200

..... and .....

(1)

2. (a) List the factors of 28

(1 mark)

(b) Write down the highest common factor (HCF) of 21 and 28

(2 marks)

3. Write down the highest common factor (HCF) of 12 and 16.

(2 marks)

4. Write down the lowest common multiple (LCM) of 9 and 12.

(2 marks)

5. A red light flashes every 6 seconds.
A yellow light flashes every 4 seconds.
They both flash at the same time.

After how many seconds will they next both flash at the same time?

(2 marks)

6. Write down two numbers that have a highest common factor (HCF) of 10

(2 marks)

7. Tilly the dog barks every 9 seconds.
Billy the dog barks every 12 seconds.
They both bark at the same time.

After how many seconds will they next bark at the same time?

(2 marks)

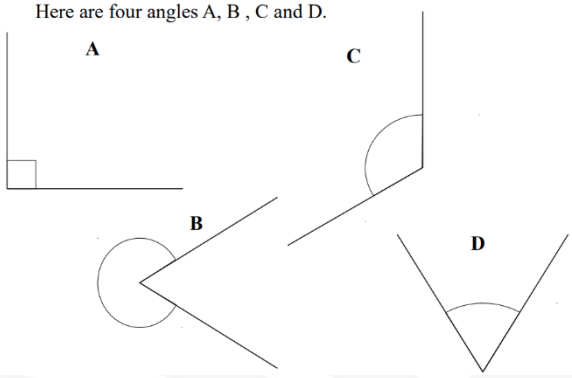
8. Find the lowest common multiple (LCM) of 12, 15 and 18.

(3 marks)

Example:

- Acute angles are less than 90˚
- Obtuse angles are greater than 90˚ and less than 180˚
- Reflex angles are greater than 180˚and less than 360˚
-
- Angles in a right angle add to 90˚
- Angles on a straight line add to 180˚
- Angles in a triangle add to 180˚
- Angles around a point add to 360˚
- Angles in a quadrilateral add to 360˚

1. Here are four angles A, B , C and D.



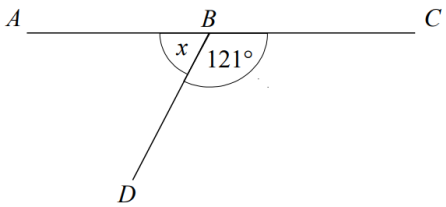
Match the angle mathematical name to the angle.

Mathematical Name	Angle
Acute Angle	
Obtuse Angle	
Right Angle	
Reflex Angle	

(3 marks)

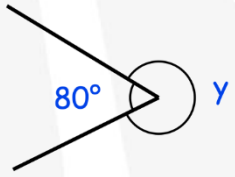
2. Work out the size of the missing angle. Give reason for your answers.

a)



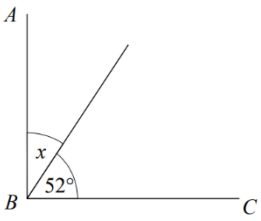
(2 marks)

b)



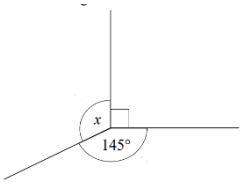
(2 marks)

4. *AB* and *BC* are perpendicular lines.
Work out the size of the angle marked *x*.
Give a reason for your answer.

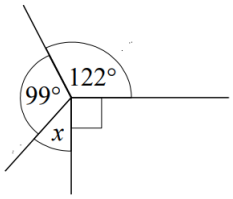


(2 marks)

5. Work out the size of the angle marked *x*.
Give a reason for your answer.



6. Work out the size of the angle marked *x*.
Give a reason for your answer.

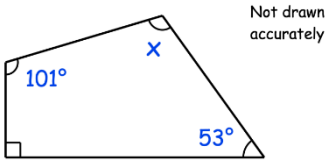


(3 marks)

7.

Shown is a right angled triangle.

8 Shown below is a quadrilateral.



Work out the size of the angle marked x.

(2 marks)

(2 marks)