

# Revision Booklet 4

## Topics

1. Mean
2. Index Notation
3. Standard Form
4. Inequalities
5. Quadratic Functions

Name \_\_\_\_\_

- Find the mean of 2, 3, 7 12 and 26
- The mean of 6 numbers is 12. If five of these numbers are 8, 10, 11, 13.5 and 17, what is the sixth number?
- The table below shows the data for vehicles passing a speed camera in a 40 mph limit area. Calculate the estimated mean for this data use sigma notation in the correct places on the table

Speed (s)	Frequency		
$10 \leq s < 20$	3		
$20 \leq s < 30$	12		
$30 \leq s < 40$	48		
$40 \leq s < 50$	11		
$50 \leq s < 60$	6		
	$\sum f =$		

$$4. \text{ Simplify } (3xy^3)^2$$

6. Write using fractional index  $\sqrt[3]{y^2}$

7. Write in standard index form

a) 130 000 000      b) 0.000023

## 8. Write as ordinary numbers

a)  $2.5 \times 10^5$       b)  $5.7 \times 10^{-4}$

9. Evaluate and give your answer in standard index form

$$a) (1.2 \times 10^7) + (2.3 \times 10^5)$$

$$\text{b) } (6.7 \times 10^{-6}) + (4.3 \times 10^{-4})$$

$$c) (2.5 \times 10^4) - (2.3 \times 10^3)$$

d)  $(7.5 \times 10^{-3}) - (7.2 \times 10^{-4})$

10. Evaluate giving your answers in standard form

$$\frac{2.5 \times 10^6 \times 6 \times 10^{-4}}{5 \times 10^{-3}}$$

11. Write down the integers that satisfy the inequalities

a)  $-4 \leq x < 3$

b)  $-10 < 5x \leq 15$

c)  $-11 < 3x < 13$

12. Solve the inequalities

a)  $5x + 2 \leq 17$

b)  $5x - 2 \geq 3x + 10$

c)  $3x + 4 < 7x - 16$

d)  $5x - 3 > 7x + 13$

13. Multiply out (Expand) the brackets on the following:

a.  $3(x + 2)$

e.  $(a + 2)(b + 3)$

b.  $5(2y - 4)$

f.  $(x - 3)(x + 4)$

c.  $t(t + 3)$

g.  $(x + 5)(x - 5)$

d.  $2d(d - 5)$

h.  $(3x + 5)(2x + 3)$

14. Factorise the following

a.  $3x + 15$

e.  $b^2 - 25$

b.  $15y - 12$

f.  $x^2 + x - 6$

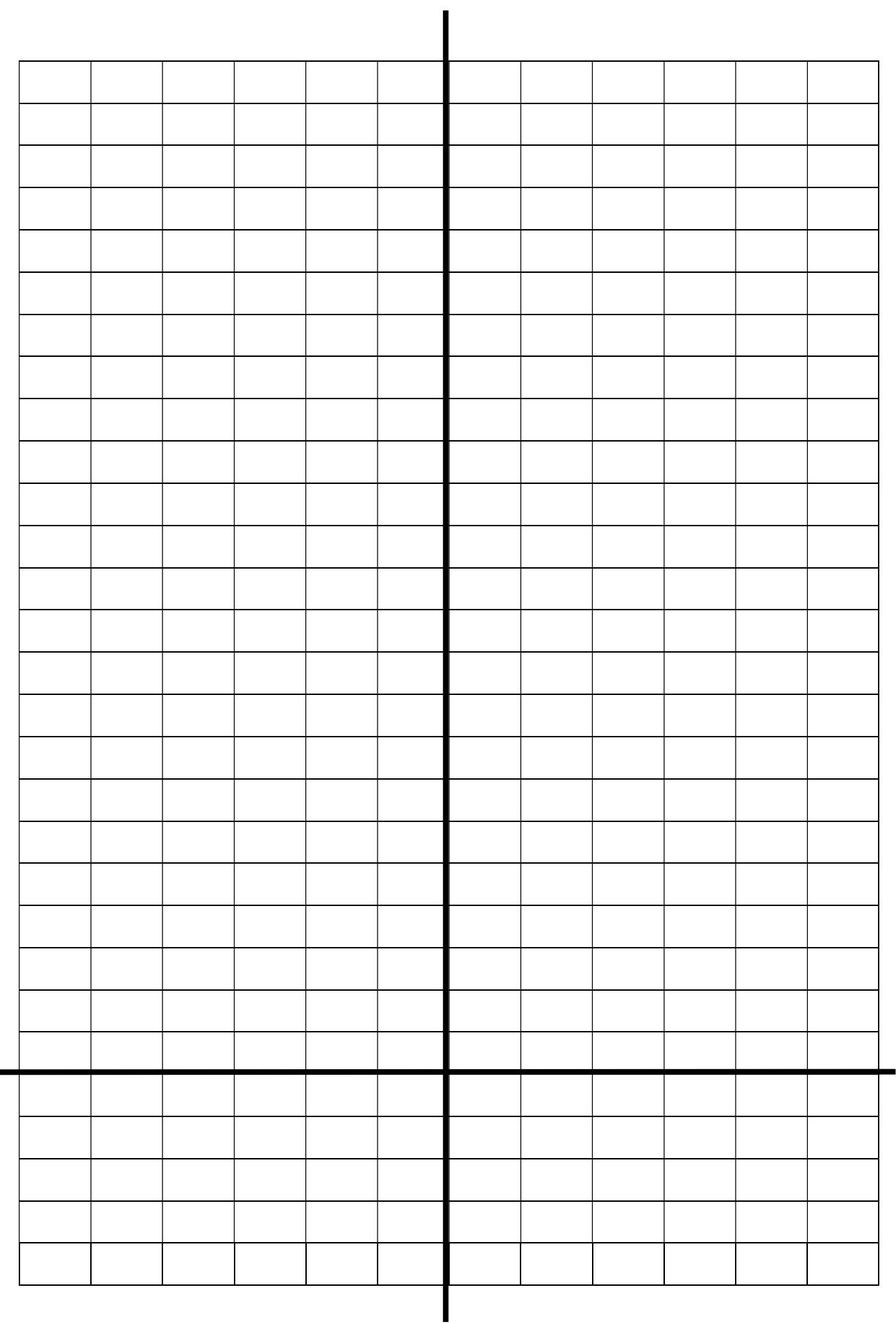
c.  $t^2 + 5t$

g.  $x^2 + 2x - 15$

d.  $12d^2 - 6d$

h.  $x^2 - 3x - 28$

15. Use the tables below to help find the x and y values for a)  $y = x^2 + x - 6$  and b)  $y = 16 - x^2$  and then plot the graphs on the squared section provided



14. Solve by factorising these quadratic equations

a.	$O = x^2 + 5x + 6$	g.	$O = x^2 + 2x + 1$
b.	$O = x^2 - x - 6$	h.	$O = x^2 - 2x + 1$
c.	$O = x^2 + 2x - 15$	i.	$O = x^2 + 6x - 16$
e.	$O = x^2 + x - 12$	j.	$O = x^2 + 3x - 70$
f.	$O = x^2 + 5x - 24$	k.	$O = x^2 + 5x - 36$

15. Simplify this fraction  $\frac{x^2 - x - 6}{x^2 - 2x - 3}$

16. Solve these by completing the square

a.	$O = x^2 + 4x + 1$	g.	$O = x^2 + 4x - 1$
b.	$O = x^2 - 2x - 1$	h.	$O = x^2 - 2x - 3$
c.	$O = x^2 + 6x - 10$	i.	$O = x^2 + 8x + 16$
e.	$O = x^2 + 6x + 2$	j.	$O = x^2 + 10x - 5$
f.	$O = x^2 + 8x + 12$	k.	$O = x^2 - 8x - 12$

## Notes on the Things that I Need to Remember