

full working hand written

1. Pick from the box an example of each of the following, (you may use old notes, books or the internet)

- (a) an expression, (b) an equation (c) a constant
- (d) a variable, (e) a term, (f) a coefficient
- (g) an index (h) an identity

y	mx	c	$3x^2$	$2x$	10	$6x^2$	a^2	b^2	$(a + b)(a - b)$
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2. Solve the equations:

(a) $3(2x - 5) = (x - 8) - 6(3 - x)$ (b) $\frac{1}{2}(5x - 3) = \frac{1}{4}(7 - 2x) - 5$

3. Find the values of x and y that simultaneously satisfy:

(a) $\begin{cases} 3x + 2y = 4 \\ x - 2y = 36 \end{cases}$ (b) $\begin{cases} 7x + y = 25 \\ x^2 + y^2 = 25 \end{cases}$

For the equations in part (a), explain how you could have found the solution graphically.

4. Factorise the following:

(a) $5x^2y - 2x$ (b) _____

5. Factorise fully the following:

(a) $x^2 - 5x + 6$ (b) $x^2 - 5x - 6$ (c) $x^2 + 5x - 6$
 (d) $x^2 + 5x + 6$ (e) $3x^2 - 7x + 6$ (f) $x^2 - 9$
 (g) $6x^2 - 15x + 6$

6. (a) Make h the subject of $\frac{2}{Rt} = mgh + k^2h$.

(b) Make h the subject of $2h = 6x^2 - 2xh$.

(c) Make h the subject of $yh = \frac{10}{h}$.

(d) Make h the subject of $y = 1 + \sqrt{3h - 1}$.

7. _____ der than he was 11 years ago.

- (a) _____
- (b) How old is James now?

8. Write each of the following expressions as a single fraction in its simplest form:

(a) $\frac{a}{b^2} - \frac{a^2}{b}$ (b) $2uv^2 - \frac{u}{v}$ (c) $\frac{1}{4x} - \frac{1}{6x}$

9. Simplify the following fractions:

(a) $\frac{2(x - 2)^3}{(x - 2)(x + 4)}$ (b) $\frac{3y - 9}{y^2 - 9}$ (c) $\frac{6ab - 30b^2}{3(2a - 5b)}$