For every question, **simplify both expressions on separate lines** before you write your decision.

1 Decide whether each pair is equivalent.

(a) $5p + 8$ and $2p + 6 + 3p + 2$ (2)

(b) $3x + 5 - x + 2$ and $7x + 10 - 5x - 3$ (2)

(4 marks)

2 Decide whether each pair is equivalent.

(a) $8 + 5y - 6 - y$ and $8y + 9 - 5y - 7$ (2)

(b) $5t + 9 - t - 6 + 2t$ and $11t + 11 - 7t - 8$ (2)

(4 marks)

3 Decide whether each pair is equivalent.

(a) $2x + 14$ and $x + 7 + x + 7$ (2)

(b) $5n - n + 3 \times 4$ and $2 \times 2n + 6 \times 2$ (2)

(c) $3y + 15$ and $3y + 4 \times 4$ (2)

(6 marks)

4 Simplify each expression.

(a) $8 + 7a - 2 - 2a$ (1)

(b) $6x + 8 + 2x - 7$ (1)

(c) $10y - y + 8 - 5y - 7$ (1)

(d) $5t + 9 - t - 6 + 2t$ (1)

(4 marks)

5 A pupil says that $2x$ and $5x$ are equivalent expressions, *because when I substitute* 0 *for* x*, I get* $2 \times 0 = 0$ *and* $5 \times 0 = 0$*, which are equal.*

(a) Find a value of x for which the two expressions disagree, and write down both answers (2)

(b) Write down one thing the pupil said that is completely true (2)

(c) Finish the sentence: *two expressions are equivalent only if they are equal for...* (2)

(6 marks)

6 Simplify each expression fully.

(a) $3 \times 2m + 5m$ (1)

(b) $\frac{8k}{4} + 3k$ (1)

(c) $4 \times 3p - 5p + 2$ (1)

(d) $2a + 3 \times 3a - 4a$ (1)

(4 marks)