Lesson 1,1 Index Laws (AS Pure Maths)

1 Simplify the following expressions:

(a) $x^7 \times x^3$ (b) $3a^3 \times 4a^2$ (c) $\frac{b^9}{b^3}$ (d) $8x^6 \times 2x^4$ (e) $(r^4)^2 \times 2r^3$ (f) $(2x^5) \div x^3$

2 Simplify the following:

(a) $\frac{x^9 + x^4}{x^3}$ (b) $\frac{30a^2 - 6a^7}{5a}$ (c) $\frac{25x^8 + 15x^5}{5x^2}$

3 *Given that* $\frac{44x^4 - 5(xy)^5 + (3x^2)^2}{10x^2}$ *can be written in the form* $\frac{7}{2}x^p - \frac{1}{2}x^q x^r$, *find the value of* p, q *and* r.