1A Laws of Indices

1. Simplify
a) $x^2 \times x^5$

b) $2r^2 \times 3r^3$

c) $\dfrac{b^7}{b^4}$

d) $6x^5 \div 3x^3$

e) $(a^3)^2 \times 2a^2$

f) $(3x^2)^3 \div x^4$

2. Expand and simplify if possible
a) $-3x(7x - 4)$

b) $y^2(3 - 2y^3)$

c) $4x(3x - 2x^2 + 5x^3)$

d) $2x(5x + 3) - 5(2x + 3)$

3. Simplify

a) $\dfrac{x^7 + x^4}{x^3}$

b) $\dfrac{3x^2 - 6x^5}{2x}$

c) $\dfrac{20x^7 + 15x^3}{5x^2}$

1D Negative & Fractional Indices

1. Simplify

a) $\dfrac{x^3}{x^{-3}}$

b) $x^{\frac{1}{2}} \times x^{\frac{3}{2}}$

c) $(x^3)^{\frac{2}{3}}$

d) $\sqrt[3]{125x^6}$

e) $\dfrac{2x^2-x}{x^5}$

2. Evaluate (work out the value of)

a) $9^{\frac{1}{2}}$

b) $64^{\frac{1}{3}}$

c) $49^{\frac{3}{2}}$

d) $25^{-\frac{3}{2}}$

3. Given that $y = \frac{1}{16}x^2$, express $y^{\frac{1}{2}}$ in the form kx^n where k and n are constants

4. Given that $y = \frac{1}{16}x^2$, express $4y^{-1}$ in the form kx^n where k and n are constants