1.1) Index Laws

Worked example	Your turn
Simplify:	Simplify:
$(a^5)^3 \times 4a^7$	$(a^3)^2 \times 2a^2$
	$2a^8$
$(5xy^4)^3$	$(4x^3y)^3$
	$64x^9y^3$

Worked example	Your turn
Simplify: $7x^3(6 - 5x) - 4x(3 - 2x^3)$	Simplify: $2x^2(3 + 5x) - x(4 - x^2)$ $11x^3 + 6x^2 - 4x$
$$\dfrac{5x^4 + 3x^2}{6x^3}$$	$$\dfrac{x^3 - 2x}{3x^2}$$ $\dfrac{1}{3}x - \dfrac{2}{3x}$

Worked example	Your turn
Simplify:	Simplify:

Worked example:

Simplify:

$$4^x \times 5^x$$

$$7^{x+1} \times 6^{x+1}$$

Your turn:

Simplify:

$$2^{x-4} \times 3^{x-4}$$

$$6^{x-4}$$

Worked example	Your turn
Simplify:	Simplify:
$(x^2)^3$	$(5a^7bc^5)^3$
	$125a^{21}b^3c^{15}$
$(2x^3y^4)^5$	
$(4ab^2c^4)^3$	

Worked example	Your turn
Simplify: $$\sqrt{16x^2y^6z^4}$$	Simplify: $$\sqrt{9a^3b^6c^2d}$$ $$\color{red}{3a^{\frac{3}{2}}b^3cd^{\frac{1}{2}}}$$
$$\sqrt[3]{27x^4y^6z}$$	

Worked example	Your turn
Write in index form: $$32 \times 128$$ $$3 \times 27 \times 81$$	Write in index form: $$5 \times 25 \times 625$$ $$5^7$$

Worked example	Your turn
Write 25^3 as 5^n	Write 27^4 as 3^n
	3^{12}
Write 16^5 as 2^n	

Worked example	Your turn
Write $81^4 \times 9^7$ as 3^n	Write $25^{\frac{1}{3}} \times 125^{-\frac{2}{5}}$ as 5^n
	$5^{-\frac{8}{15}}$
Write $8^{\frac{1}{2}} \times 128^{-\frac{3}{4}}$ as 2^n	

Worked example	Your turn
Write $0.04^5 \times 0.2^3$ as 5^n	Write $0.125^3 \times 0.5^7$ as 2^n
	2^{-16}

Worked example	Your turn
Write $\dfrac{81^4}{9^7}$ as 3^n	Write $\dfrac{25^4}{125^6}$ as 5^n
	5^{-10}
Write $\dfrac{16^3}{32^7}$ as 2^n	