

Using Indices

How to ...

(a) Simplify $a^4 \times a^5 = a^{4+5} = a^9$

*if it was

$$a^6 \div a^2 = a^{6-2} = a^4$$

$$(a^3)^2 = a^{3 \times 2} = a^6$$

(1)

(b) Simplify $\frac{45e^{6f^8}}{5ef^2}$ deal with the numbers and letters separately

$$45 \div 5 = 9$$

$$e^6 \div e = e^{6-1} = e^5$$

$$\frac{45e^6f^8}{5ef^2} \rightarrow \frac{9e^5f^6}{f^8 \div f = f^{8-2} = f^6}$$

(2)

(c) Write down the value of $9^{\frac{1}{2}}$

$$\square^{\frac{1}{2}} = \sqrt{\square}$$

$$\text{so } 9^{\frac{1}{2}} = \sqrt{9} = \underline{\underline{3}}$$

$$\square^{\frac{1}{3}} = \sqrt[3]{\square}$$

eg. $8^{\frac{1}{3}} = \sqrt[3]{8} = 2$

(1)

HINT anything to the power of zero = 1

Now have a go yourself ...

MUST

a) $f^5 \times f^3$

b) $f^2 \times f^4$

c) $f^2 \times f^5$

a) $f^4 \div f$

b) $f^7 \div f^2$

c) $f^8 \div f^4$

a) $(2f^3)^2$

b) $(2f^2)^3$

c) $(2f^2)^2$

SHOULD

a) $2f^5 \times 3f^3$

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

c) $2f^2 \times 2f$

a) $e^2f^8 \times e^3f^2$

b) $(e^3f)^4$

c) $5e^5f^4 \times 3e^3f$

a) $\frac{f^{12} \times f^2}{f^4}$

b) $\frac{24e^8f^9}{8e^4f^3}$

c) $\frac{18e^4f^9}{6e^4f^3}$

COULD

a) f^0

b) $(f^{-2})^5$

c) 9^1

a) 27^0

b) $16^{\frac{1}{2}}$

c) $25^{\frac{1}{2}}$

a) $(f^4)^{-5}$

b) $8^{\frac{1}{3}}$

c) $27^{\frac{1}{3}}$

$6f^3$	$4f^4$	4	f^5	1	e^5f^{10}	f^8
f^3	$6f^8$	f^{-10}	$4f^6$	2	f^{10}	9
3	e^{12f^4}	5	f^7	$3e^4f^6$	$4f^3$	f^{-20}
1	f^6	$15e^8f^5$	$8f^6$	f^4	$3f^6$	

Exam Questions

Simplify the following:

a) $a^3 \times a^5$

b) $a^6 \times a^{-4}$

c) $2a^2 \times 3ab$

d) $3a^2b \times 5a^2b$

e) $a^7 \div a^5$

f) $a^6 \div a^{-4}$

g) $(f^2)^3$

h) $(3f^3)^2$

i) $(5f^4)^2$

j) 14^0

k) $\frac{55e^5f^7}{5ef^2}$

l) $\frac{27e^4f^6}{3ef^6}$

m) $81^{\frac{1}{4}}$

n) $64^{\frac{1}{2}}$

Ready to be marked ?

Checklist



Answer checked

Working out shown



Keywords



Things to remember ...



What went well ...

Teacher comment ..