GCSE & High School Topic Questions

Divide Indices

Divide indices involve simplifying the coefficients(numbers) & canceling variables(letters) of the same type in the numerator and denominator.

Examples

(1) Simplify: 8a ÷ 2a

$$8a \div 2a = \frac{8a}{2a}$$

Rewrite as a fraction

$$= \frac{\cancel{2} \times 2 \times 2 \times \cancel{a}}{\cancel{2} \times \cancel{a}}$$

write factors of 8 & then cancel all identical items in the top & bottom

$$= 2 \times 2$$

$$= 4$$

multiply

(2) Simplify: 90pqr ÷ 10q

$$90pqr \div 10q = \frac{\cancel{90}^{9} \times p \times \cancel{q} \times r}{\cancel{10} \times \cancel{q}_{1}}$$

Simplify cofficients & then cancel all identical items in the top & bottom

$$= 9 \times p \times r$$

(Write the answer without multiplication sign)

$$= 9pr$$

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Divide Indices

Dividing Rule: $a^m \div a^n = a^{m-n}$

If bases are the same, then subtract the powers.

$a^0 = 1$

If power is zero,it is equal to 1

Examples

(1) Simplify: $k^5 \div k^2$

$$k^5 \div k^2 = \frac{k^5}{k^2}$$

write in fraction & subtract powers.

$$= k^{5-2} = k^3$$

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(2) Simplify: $20t^3 \div 5t$

$$20t^3 \div 5t = \frac{20 \times t^3}{5 \times t^1}$$

write in fraction & Simplify numbers.

$$= 4 \times t^{3-1}$$

If bases are same,then subtract the powers

$$= 4t^2$$

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Q1: Simplify the following expressions:

(1) $24a \div 8$ (1 mark)	(2) $25t \div 5$ (1 mark)
(3) $81m \div 9$ (1 mark)	(4) $12c \div 2c$ (1 mark)
(5) $10xy \div y$ (1 mark)	(6) $36gh \div 4gh$ (1 mark)
(7) $24abc \div 6ac$ (1 mark)	(8) $7ab \div b$ (1 mark)

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Divide Indices

Q1: Simplify the following expressions:

(9) $15xy \div 3xy$ (1 mark)	(10) $42ghk \div 6hk$ (1 mark)
(11) $56wyz \div 7wy$ (1 mark)	(12) $50pqr \div 10pr$ (1 mark)

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Divide Indices

Q2: Simplify the following expressions:

Dividing Rule: $a^m \div a^n = a^{m-n}$

$a^0 = 1$

(1) $m^2 \div m$ (1 mark)	(2) $y^3 \div y$ (1 mark)
(3) $16x^2 \div 4x$ (1 mark)	(4) $24e^2 \div 3e$ (1 mark)
(5) $100a^3 \div 10a^3$ (1 mark)	(6) $27h^3 \div 3h^2$ (1 mark)
(7) $60g^6 \div 2g^4$ (1 mark)	(8) $18x^5 \div 6x^2$ (1 mark)

GCSE & High School Topic Questions

Divide Indices

Q2: Simplify the following expressions:

Dividing Rule: $a^m \div a^n = a^{m-n}$

$a^0 = 1$

(9) $35a^6 \div 7a^6$

(1 mark)

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(10) Match the equivalent expressions:

$6c^2 \div 2c$	$3c^2$
$9c \div 3c$	$9c^2$
$15c^3 \div 5c$	$3c$
$27ac^3 \div 3ac$	3

(4 marks)

GCSE & High School Topic Questions

Divide Indices

answers

Q1: Simplify the following expressions:

(1) $24a \div 8$ $24a \div 8 = 3a$	(2) $25t \div 5$ $25t \div 5 = 5t$
(3) $81m \div 9$ $81m \div 9 = 9m$	(4) $12c \div 2c$ $12c \div 2c = 6$
(5) $10xy \div y$ $10xy \div y = 10x$	(6) $36gh \div 4gh$ $36gh \div 4gh = 9$
(7) $24abc \div 6ac$ $24abc \div 6ac = 4b$	(8) $7ab \div b$ $7ab \div b = 7a$

GCSE & High School Topic Questions

Divide Indices

answers

Q1: Simplify the following expressions:

(9) $15xy \div 3xy$ $15xy \div 3xy = 5$	(10) $42ghk \div 6hk$ $42ghk \div 6hk = 7g$
(11) $56wyz \div 7wy$ $56wyz \div 7wy = 8z$	(12) $50pqr \div 10pr$ $50pqr \div 10pr = 5q$

GCSE & High School Topic Questions

Divide Indices

answers

Q2: Simplify the following expressions:

Dividing Rules: $a^m \div a^n = a^{m-n}$ $\quad a^0 = 1$

(1) $m^2 \div m$ $m^2 \div m = m^{2-1}$ $= m$	(2) $y^3 \div y$ $y^3 \div y = y^{3-1}$ $= y^2$
(3) $16x^2 \div 4x$ $16x^2 \div 4x = 4x^{2-1}$ $= 4x$	(4) $24e^2 \div 3e$ $24e^2 \div 3e = 8e^{2-1}$ $= 8e$
(5) $100a^3 \div 10a^3$ $100a^3 \div 10a^3 = 10a^{3-3}$ $= 10a^0 = 10$	(6) $27h^3 \div 3h^2$ $27h^3 \div 3h^2 = 9h^{3-2}$ $= 9h$
(7) $60g^6 \div 2g^4$ $60g^6 \div 2g^4 = 30g^{6-4}$ $= 30g^2$	(8) $18x^5 \div 6x^2$ $18x^5 \div 6x^2 = 3x^{5-2}$ $= 3x^3$

GCSE & High School Topic Questions

Divide Indices

answers

Q2: Simplify the following expressions:

Dividing Rules: $a^m \div a^n = a^{m-n}$ $\quad a^0 = 1$

(9) $35a^6 \div 7a^6$

$35a^6 \div 7a^6 = 5a^{6-6}$

$= 5a^0$

$= 5 \qquad (a^0 = 1)$

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(10) Match the equivalent expressions: