9 MATH BURNS 2017

U2:L5 — Exponent Laws 3,4,5+6

Consider the power:

$$\frac{2\times3}{(\chi\cdot\chi)^3}$$

Write using repeated multiplication:

$$(\chi \cdot \chi) \cdot (\chi \cdot \chi) \cdot (\chi \cdot \chi) = \chi$$

This gives us the third law of exponents:

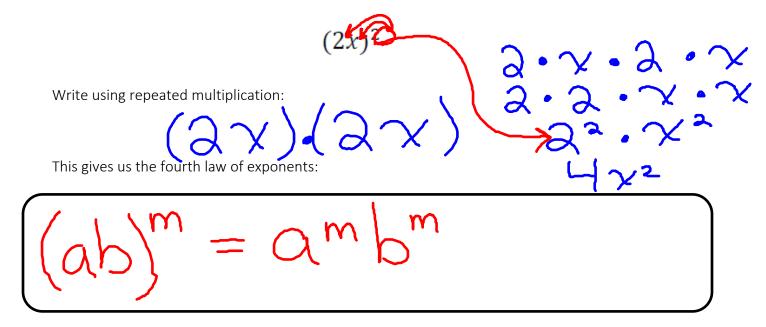
$$\left(\mathcal{O}_{m} \right)^{n} = \mathcal{Q}_{m \times n}$$

Write each power as a single power, then evaluate (if possible).

c)
$$(a^3)^5$$
 3 x 5 = (15)

9 MATH BURNS 2017

Consider the power:



Write each power as a single power, then evaluate (if possible).

a)
$$(2) \times (-3)^4$$
 $(-3)^4 = (6)$

$$= (1,296)$$
b) $(-1)^3 (-2)^3 = (-1)(-8) = (-1)$
c) $(3a)^3$ $(-2)^3 = (-1)(-8) = (-1)$
d) $(-2)^4 = (-1)^4 (-3)^4 = (-1)(-8) = (-1)$
e) $(x^2y^3)^5$
 $(-2)^5 (-2)^5 = (-1)(-8) = (-1)(-8)$

$$= (-1)(-8) = (-1)(-$$

9 MATH BURNS 2017

Consider the power:

$$\frac{\left(\frac{x}{y}\right)^2}{y^2} = \frac{\chi^2}{y^2}$$

$$\frac{\chi^2}{x \cdot \chi}$$

Write using repeated multiplication:

This gives us the fifth law of exponents:

$$\left(\frac{b}{b}\right)^{m} = \frac{am}{b^{m}}$$

Write each power as a single power, then evaluate (if possible).

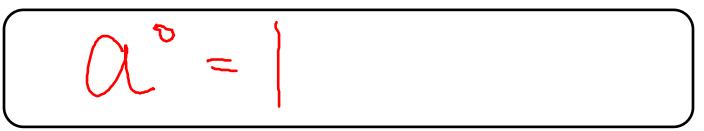
a)
$$\binom{3}{4}$$
0 $\frac{3}{4}$ 3 $\frac{3}{4}$ 4 $\frac{3}{4}$ 4 $\frac{3}{4}$ 4 $\frac{3}{4}$ 5 $\frac{3}{4}$ 6 $\frac{3}{4}$ 7 $\frac{3}{4}$ 7 $\frac{3}{4}$ 7 $\frac{3}{4}$ 8 $\frac{3}{4}$ 9 $\frac{3}{4$

Evaluate 30 using a table

3x3x3x	Power	Value
3, 21,3X	3 3 ⁴	81
2 x 2 x 3	3 ³	a 7
> x 3	3 ²	9
	3 ¹	3
	30	

Determine the pattern in the values

Just like we have already seen, we have a sixth exponent law:



TRY IT OUT:

a)
$$(-5)^0$$

$$(-)$$
 $(5^{\circ}) = (-)(1) = [-1]$

e)
$$(5xy^0z)^2$$
 $5^2\chi^2(y^0)^2\chi^2 = 25\chi^2\chi^2\chi^2$
f) $(5xy^2z)^0$ = $2\chi^2\chi^2\chi^2$

f)
$$(5xy^2z)^0$$
 = $25\chi^2z^2$