

Index Laws: Multiplying and Dividing

ANSWERS

1



Write as a single power of 7.

$$7^{x+4} \times 7^{2x-1}$$

$$(x+4) + (2x-1) = 3x+3$$

$$7^{3x+3}$$

Answer

2



Write as a single power of 6.

$$6^{-3} \times 6^8 \div 6^{-2}$$

$$-3 + 8 - (-2) = 5 + 2 = 7$$

$$6^7$$

Answer

3



Write as a single power of 2.

$$8^5 \times 2^4$$

$$8 = 2^3, \text{ so } 8^5 = 2^{15}$$

$$2^{15} \times 2^4 = 2^{19}$$

$$2^{19}$$

Answer

4



Simplify.

$$(2y^5)^3 \div 4y^2$$

$$(2y^5)^3 = 8y^{15}$$

$$2y^{13}$$

Answer

5



Simplify.

$$\frac{6m^5n^2 \times 2mn^4}{9m^3n^7}$$

$$\text{top: } 12m^6n^6$$

$$\frac{12}{9} = \frac{4}{3}, 6-3=3, 6-7=-1$$

$$\frac{4}{3}m^3n^{-1}$$

Answer

6



Find the missing power.

$$5^{2x} \times 5^? = 5^{x+7}$$

$$2x + (? - x) = x + 7$$

$$7 - x$$

Answer

7



Find the value of x .

$$25^{x+1} = 5^9 \times 5^7 \div 5^4$$

$$\text{right side: } 5^{12}, \text{ and } 25^{x+1} = 5^{2(x+1)}$$

$$2(x+1) = 12$$

$$x = 5$$

Answer

8



$6 \times 2^{10} + 5 \times 2^{11} = a^b$, where a is a prime number.
Find a and b .

$$2^{10}(6 + 5 \times 2) = 2^{10} \times 16 = 2^{14}$$

$$\text{not prime: } 4^7 \text{ or } 128^2$$

$$a = 2, b = 14$$

Answer