

Exercise 19

Let a and b be numbers. Use the distributive law to simplify the expression of the following number:

$$b(a + b) =$$

Exercise 20

Let a and b be numbers. Use the distributive law to simplify the expression of the following number:

$$(a + b)(a + b) =$$

In general, if x is nonzero and m, n are positive integers, then

$$\frac{x^m}{x^n} = x^{m-n}, \text{ if } m > n.$$

Divide w/exponents

Keep the base, subtract the exponents

Exercise 21

$$\frac{7^9}{7^6} = 7^{9-6} = 7^3$$

Exercise 23

$$\frac{\left(\frac{8}{5}\right)^9}{\left(\frac{8}{5}\right)^2} = \left(\frac{8}{5}\right)^7$$

Exercise 22

$$\frac{(-5)^{16}}{(-5)^7} = (-5)^9$$

Exercise 24

$$\frac{13^5}{13^4} = 13^1$$

Exercise 25

Let a, b be nonzero numbers. What is the following number?

$$\frac{\left(\frac{a}{b}\right)^9}{\left(\frac{a}{b}\right)^2} =$$

Exercise 26

Let x be a nonzero number. What is the following number?

$$\frac{x^5}{x^4} =$$

Can the following expressions be simplified? If yes, write an equivalent expression for each problem. If not, explain why not.

Exercise 27

$$\frac{2^7}{4^2} = \frac{2^7}{2^4} = 2^{7-4} = 2^3$$

Handwritten notes:
 $4 \times 4 = 16$
 $16 = 2^4$

Exercise 29

$$\frac{3^5 \cdot 2^8}{3^2 \cdot 2^3} = \frac{3^5}{3^2} \times \frac{2^8}{2^3}$$

$$= 3^{5-2} \times 2^{8-3}$$

$$= 3^3 \times 2^5$$

Handwritten notes:
 The final result $3^3 \times 2^5$ is circled in red.

Exercise 28

$$\frac{3^{23}}{27} = \frac{3^{23}}{3^3} = 3^{23-3} = 3^{20}$$


Handwritten notes:
 $27 = 3^3$

Exercise 30

$$\frac{(-2)^7 \cdot 95^5}{(-2)^5 \cdot 95^4} =$$

Exercise 31

Let x be a number. Simplify the expression of each of the following numbers:

a. $\frac{5}{x^3}(3x^8) =$ 

b. $\frac{5}{x^3}(-4x^6) =$

c. $\frac{5}{x^3}(11x^4) =$

Exercise 32

Anne used an online calculator to multiply $2,000,000,000 \times 2,000,000,000,000$. The answer showed up on the calculator as $4e + 21$, as shown below. Is the answer on the calculator correct? How do you know?

