

15. Refuerza:  
propiedades de las potencias  
Soluciones

1 Ya sabes que  $(a \cdot b)^n = a^n \cdot b^n$ . Completa las casillas vacías.

$$4^2 \cdot 3^2 = 12^{\boxed{2}}$$

$$2^5 \cdot 5^5 = \boxed{10}^5$$

$$4^3 \cdot 2^3 = 8^{\boxed{3}}$$

$$3^4 \cdot 5^4 = \boxed{15}^4$$

$$2^3 \cdot 10^3 = 20^{\boxed{3}}$$

$$7^4 \cdot 2^4 = \boxed{14}^4$$

2 Ya sabes que  $\left(\frac{a}{b}\right)^n = \frac{a^n}{b^n}$ . Completa.

$$\frac{6^4}{2^4} = 3^{\boxed{4}}$$

$$\frac{10^5}{2^5} = \boxed{5}^5$$

$$\frac{15^3}{3^3} = 5^{\boxed{3}}$$

$$\frac{6^5}{3^5} = \boxed{2}^5$$

$$\frac{6^4}{12^4} = \left(\frac{1}{2}\right)^{\boxed{4}} = \frac{1}{2^{\boxed{4}}}$$

$$\frac{8^3}{12^3} = \left(\frac{\boxed{2}}{\boxed{3}}\right)^3$$

3 Ya sabes que  $a^m \cdot a^n = a^{m+n}$ . Completa las casillas vacías.

$$2^3 \cdot 2^4 = 2^{\boxed{7}}$$

$$3 \cdot 3^2 \cdot 3^3 = 3^{\boxed{6}}$$

$$5^3 \cdot 5^{\boxed{6}} = 5^9$$

$$7^4 \cdot 7 = 7^{\boxed{5}}$$

$$4^2 \cdot 4^{\boxed{3}} = 4^5$$

$$4^2 \cdot 4^2 \cdot 4^{\boxed{2}} = 4^6$$

4 Ya sabes que  $a^m : a^n = \frac{a^m}{a^n} = a^{m-n}$ . Completa.

$$2^8 : 2^5 = 2^{\boxed{3}}$$

$$5^{\boxed{7}} : 5^3 = 5^{\boxed{4}}$$

$$7^4 : 7^{\boxed{2}} = 7^2$$

$$\frac{10^3}{10} = 10^{\boxed{2}}$$

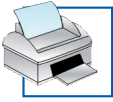
$$\frac{3^2 \cdot 3^4}{3^3} = 3^{\boxed{3}}$$

$$\frac{4^{\boxed{7}}}{4^3 \cdot 4^2} = 4^2$$

$$\frac{5^7}{5^2} = 5^{\boxed{5}}$$

$$\frac{2^{\boxed{8}}}{2^5} = 2^3$$

$$\frac{5^9}{5^{\boxed{2}} \cdot 5^3} = 5^4$$



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5 Ya sabes que  $(a^n)^m = a^{n \cdot m}$ . Completa.

$$(5^5)^3 = 5^{\boxed{15}}$$

$$(8^3)^2 = 8^{\boxed{6}}$$

$$(2^4)^2 = 2^{\boxed{8}}$$

$$(4^5)^{\boxed{3}} = 4^{15}$$

$$(7^{\boxed{2}})^2 = 7^4$$

$$(6^3)^{\boxed{2}} = 6^6$$

$$(a^2 \cdot b^4)^3 = a^{\boxed{6}} \cdot b^{\boxed{12}}$$

$$\left(\frac{a}{b^2}\right)^4 = \frac{a^{\boxed{4}}}{b^{\boxed{8}}}$$

$$\left(\frac{2}{a^5}\right)^{\boxed{2}} = \frac{2^2}{a^{\boxed{10}}}$$

6 Ya sabes que  $a^0 = 1$ . Completa las casillas vacías.

$$5^0 = \boxed{1}$$

$$7^0 = \boxed{1}$$

$$4^{\boxed{0}} = 1$$

$$6^{\boxed{0}} = 1$$

$$6^4 : 6^4 = 6^{\boxed{0}} = \boxed{1}$$

$$8^3 : 8^3 = 8^{\boxed{0}} = \boxed{1}$$

7 Ya sabes que  $a^{-n} = \frac{1}{a^n}$ . Completa.

$$2^{-3} = \frac{1}{2^{\boxed{3}}}$$

$$5^{-2} = \frac{1}{5^{\boxed{2}}}$$

$$\frac{1}{6^2} = 6^{\boxed{-2}}$$

$$\frac{1}{7^2} = 7^{\boxed{-2}}$$

$$4^{-2} = \frac{1}{4^{\boxed{2}}}$$

$$3^{-3} = \frac{1}{3^{\boxed{3}}}$$

$$\frac{1}{8^3} = 8^{\boxed{-3}}$$

$$\frac{1}{4^3} = 4^{\boxed{-3}}$$

$$7^{-1} = \frac{1}{\boxed{7}}$$

$$10^{-5} = \frac{1}{10^{\boxed{5}}}$$

$$\frac{1}{5} = 5^{\boxed{-1}}$$

$$\frac{1}{2^6} = 2^{\boxed{-6}}$$