

Practice

① $\frac{6^{10}}{6^4} = 6^6$

② $\frac{8^9}{8^7} = 8^2$

③ $\frac{(-3)^4}{(-3)^1} = (-3)^3$

④ $\frac{b^{24}}{b^{11}} = b^{13}$

⑤ $\frac{(-6.4)^8}{(-6.4)^6} = (-6.4)^2$

⑥ $\frac{(-17)^5}{(-17)^2} = (-17)^3$

⑦ $\frac{(-7.9)^{10}}{(-7.9)^4} = (-7.9)^6$

⑧ $\frac{6^{15}}{6^5} = 6^{10}$

⑨ $\frac{7^4}{7^4} = 7^0 = 1$

⑩ $\frac{2^2}{2^4} = 2^{-2} = \frac{1}{2^2}$

⑪ $\frac{(-4)^5}{(-4)^2} = (-4)^3$

⑫ $\frac{5^7}{5^5} = 5^2$

⑬ $\frac{t^{13}}{t^5} \cdot \frac{t^8}{t^6} = t^8 \cdot t^2 = t^{10}$

⑭ $\frac{t^{12}}{t^6} \cdot \frac{t^5}{t^3} = t^6 \cdot t^2 = t^8$

⑮ $\frac{z^9}{z^7} \cdot \frac{z^5}{z^1} = z^2 \cdot z^4 = z^6$

⑯ $\frac{7^4 \cdot 7^3}{7^9} = \frac{7^7}{7^9} = 7^{-2} = \frac{1}{7^2}$

⑰ $\frac{7^5 \cdot 7^5}{7^2} = \frac{7^{10}}{7^2} = 7^8$

⑱ $\frac{(9^4)^2}{9^3} = \frac{9^8}{9^3} = 9^5$

Practice

Write out + give simplified exponent:

① $2^3 = \frac{2 \times 2 \times 2}{2^5} = \frac{2 \times 2 \times 2}{2 \times 2 \times 2 \times 2 \times 2}$
 2^{-2} or $\frac{1}{2^2} \left(\frac{1}{4}\right)$

② $4^5 = \frac{4 \times 4 \times 4 \times 4 \times 4}{4^7} = \frac{4 \times 4 \times 4 \times 4 \times 4}{4 \times 4 \times 4 \times 4 \times 4 \times 4 \times 4}$
 4^{-2} or $\frac{1}{4^2} \left(\frac{1}{16}\right)$

③ $X^4 = \frac{X \cdot X \cdot X \cdot X}{X^7} = \frac{X \cdot X \cdot X \cdot X}{X \cdot X \cdot X \cdot X \cdot X \cdot X \cdot X}$
 $X^{-3} = \frac{1}{X^3}$

④ $Y^3 = \frac{Y \cdot Y \cdot Y}{Y^{10}} = \frac{Y \cdot Y \cdot Y}{Y \cdot Y \cdot Y \cdot Y \cdot Y \cdot Y \cdot Y \cdot Y \cdot Y \cdot Y}$
 $\frac{1}{Y^7} = Y^{-7}$

⑤ $Z^2 = \frac{Z \cdot Z}{Z^2} = \frac{Z \cdot Z}{Z \cdot Z} = Z^0 = 1$

⑥ $2^3 = \frac{2 \times 2 \times 2}{2^1} = \frac{2 \times 2 \times 2}{2}$
 $2^2 = 4$

⑦ $5^4 = \frac{5 \times 5 \times 5 \times 5}{5^2} = \frac{5 \times 5 \times 5 \times 5}{5 \times 5}$
 $5^2 = 25$

⑧ write problems that are equal to:

2^{-3}
Many possibilities!
 $\frac{2^5}{2^8}$
 $(2^{-3})^1$

5^{-2}
 $\frac{5^5}{5^7}$
 $(5^{-2})^1$

4^{-4}
 $(4^{-4})^1$
 $\frac{4^1}{4^5}$