

$$\begin{aligned}
 5^{-3} &= \frac{1}{125} & 1 \div 5 \div 5 \div 5 \\
 5^{-2} &= \frac{1}{25} & 1 \div 5 \div 5 \\
 5^{-1} &= \frac{1}{5} & 1 \div 5 \\
 5^0 &= 1 & 1 \times \\
 5^1 &= 5 & 1 \times 5 \\
 5^2 &= 25 & 1 \times 5 \times 5 \\
 5^3 &= 125 & 1 \times 5 \times 5 \times 5 \\
 5^4 &= 625 & 1 \times 5 \times 5 \times 5 \times 5
 \end{aligned}$$

$$x^0 = 1 \quad 2^2 = 4 \quad 3^2 = 9$$

REVIEW

$$3 + (-3) = 0 \rightarrow$$

$$5^3 \cdot 5^{-3} = 5^{3+(-3)} = 5^0 = 1$$

$$\frac{125}{1} \cdot \frac{1}{125} = \frac{125}{125} = 1$$

$$\begin{aligned}
 5^1 \cdot 5^2 &= 5^{1+2} = 3 \\
 \downarrow \quad \downarrow & \quad \downarrow \\
 5 \cdot 25 &= 125
 \end{aligned}$$

ERROR TO AVOID

$$5^5 \neq 25$$

$$\begin{array}{l}
 1 \times 3 \times 3 \\
 \downarrow \\
 3^2 \cdot 3^{-2} = 3^{2+(-2)} = 3^0 = 1 \\
 \downarrow \quad \downarrow \\
 9 \cdot \frac{1}{9} = \frac{9}{9} = 1
 \end{array}$$

$$\begin{array}{l}
 \frac{1}{3} \div \frac{3}{1} \\
 \frac{1}{3} \cdot \frac{3}{1} = \frac{3}{3} = 1
 \end{array}$$

$$3^2 = 1 \cdot 3 \cdot 3 = 9$$

$$3^{-2} = 1 \div 3 \div 3 = \frac{1}{9}$$

BEFORE

$$4^2 = 4 \times 4$$

NOW

$$4^2 = \underline{1} \times 4 \times 4 = 16$$

$$4^{-2} = \underline{1} \div 4 \div 4 = \frac{1}{16}$$

$$16 \cdot \frac{1}{16} = \frac{16}{16} = 1$$

$$4^2 \cdot 4^{-2} = 4^{2+(-2)} = 4^0 = 1$$