

Name:

## 2.3–2.4 QUIZ – EXPONENT LAWS

1. Write as **repeated multiplication**

a)  $(-3)^2 \times (-4)^3 =$  \_\_\_\_\_

b)  $3^4 \div 3^2 =$  \_\_\_\_\_

c)  $(2^5)^3 =$  \_\_\_\_\_

d)  $(3 \times 2)^2 =$  \_\_\_\_\_

e)  $[( -4 ) \div 2]^3 =$  \_\_\_\_\_

2. Write as a **single power**. Show all calculations of exponents in your steps. Do not evaluate.

a)  $2^4 \times 2^8 =$  \_\_\_\_\_  $\square \quad \square$   
= \_\_\_\_\_  $\square$

b)  $(-3)^9 \div (-3)^2 =$   $(\underline{\hspace{1cm}})$   $\square \quad \square$   
= \_\_\_\_\_  $\square$

c)  $(3^5)^3 =$  \_\_\_\_\_  $\square \quad \square$   
= \_\_\_\_\_  $\square$

d)  $(2 \times 10)^3 =$  \_\_\_\_\_  $\square$

e)  $[25 \div (-5)]^4 =$  \_\_\_\_\_  $\square$

3. Write as a **single power and then evaluate**. Show all calculations of exponents in your steps.

a)  $4^4 \times 4^3 =$  \_\_\_\_\_  $\square \quad \square$   
= \_\_\_\_\_  $\square$   
= \_\_\_\_\_

b)  $(-2)^{19} \div (-2)^{13} =$   $(\underline{\hspace{1cm}})$   $\square \quad \square$   
= \_\_\_\_\_  $\square$   
= \_\_\_\_\_

c)  $(2^3)^4 =$  \_\_\_\_\_  $\square \quad \square$   
= \_\_\_\_\_  $\square$   
= \_\_\_\_\_

d)  $(5 \times 2)^7 =$  \_\_\_\_\_  $\square$   
= \_\_\_\_\_

e)  $[54 \div (-6)]^2 =$  \_\_\_\_\_  $\square$   
= \_\_\_\_\_

4. Evaluate/ Write in standard form.

a)  $10^5 =$  \_\_\_\_\_

b)  $(4 \times 10^4) + (7 \times 10^3) + (3 \times 10^1) =$  \_\_\_\_\_

c)  $10^9 =$  \_\_\_\_\_

d)  $(1 \times 10^9) + (2 \times 10^6) + (3 \times 10^3) =$  \_\_\_\_\_

5. Write the following numbers using powers of 10.

a)  $10\,000\,000 =$  \_\_\_\_\_

b)  $-1\,000 =$  \_\_\_\_\_

c)  $357\,468 =$  \_\_\_\_\_

d)  $234\,050\,753 =$  \_\_\_\_\_

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6. Evaluate using Exponent laws and **BEDMAS**. Show all calculations of exponents in your steps.

a)  $(2)^7 \div (2)^5 - (2)^2$

$$\begin{array}{r} \boxed{\phantom{0}} \boxed{\phantom{0}} \\ \underline{-} \quad \boxed{\phantom{0}} \underline{-} \quad \boxed{\phantom{0}} \\ \underline{-} \quad \boxed{\phantom{0}} \underline{-} \quad \boxed{\phantom{0}} \\ \underline{-} \quad \underline{-} \quad \boxed{\phantom{0}} \end{array}$$

b)  $2^3 + 2^4 \times 2$

$$\begin{array}{r} \boxed{\phantom{0}} \boxed{\phantom{0}} \\ \underline{+} \quad \boxed{\phantom{0}} \boxed{\phantom{0}} \\ \underline{+} \quad \boxed{\phantom{0}} \\ \underline{+} \quad \boxed{\phantom{0}} \end{array}$$

c)  $(2^2 \times 5^2)^3 \times (8^0 + 2^0)^4$

$$\begin{array}{l} (\boxed{\phantom{0}} \boxed{\phantom{0}} \times \boxed{\phantom{0}} \boxed{\phantom{0}})^3 \times (\boxed{\phantom{0}} + \boxed{\phantom{0}}) \\ (\boxed{\phantom{0}} \times \boxed{\phantom{0}}) \times (\boxed{\phantom{0}}) \\ (\boxed{\phantom{0}} \times \boxed{\phantom{0}}) \times \boxed{\phantom{0}} \\ \hline \end{array}$$

d)  $[(-4)^3]^4 \div (2^2)^2$

$$\begin{array}{l} [(\boxed{\phantom{0}} \boxed{\phantom{0}})]^4 \div \boxed{\phantom{0}} \boxed{\phantom{0}} \\ [(\boxed{\phantom{0}} \boxed{\phantom{0}})] \div \boxed{\phantom{0}} \\ \hline \end{array}$$

e)  $\frac{(7^3 \div 7)^3}{(5+2)^4}$

$$= \frac{\boxed{\phantom{0}} \boxed{\phantom{0}} \div \boxed{\phantom{0}}}{\boxed{\phantom{0}}}$$

$$= \frac{\boxed{\phantom{0}} \div \boxed{\phantom{0}}}{\boxed{\phantom{0}}}$$

$$= \frac{\boxed{\phantom{0}} \boxed{\phantom{0}}}{\boxed{\phantom{0}} \boxed{\phantom{0}}}$$

$$= \frac{\boxed{\phantom{0}}}{\boxed{\phantom{0}}}$$

$$= \boxed{\phantom{0}} \boxed{\phantom{0}}$$

$$= \boxed{\phantom{0}}$$

$$= \underline{\hspace{2cm}}$$