Check Your Understanding –Exponents 2

The table below identifies the key concepts from this unit.

1. Check your understanding by completing these questions.
2. Check your answers in the key provided.
3. In the table below, highlight the questions you got correct.
4. Ask peers/Dr. James about concepts where you can improve.

Key Concepts	 Mild	 Medium	 Spicy
Multiplying and Dividing with Exponents	1, 2	3, 4	5, 6, 11, 17
Power of a Product or Quotient	7, 8	10, 16	11, 17
Power of a Power	9	10, 16	11, 17
Exponents of 0	12	13	None
Negative Exponents	14, 15	16	17
Putting It All Together	None	None	18, 19, 20

1) Write the following with a single exponent.

$8^4 * 8^6 =$

2) Write the following with a single exponent.

$13^{10} \div 13^3 =$

3) Write the following with a single exponent.

$\left(\frac{1}{2}\right)^3 \times \left(\frac{1}{2}\right)^7 \times \left(\frac{1}{2}\right) =$

4) Write the following with a single exponent.

$\frac{(-4)^6}{(-4)^2} =$

5) Simplify using exponent rules.

$$\left(\frac{3}{2}x^5y^2\right)\left(\frac{2}{3}xy^3\right) =$$

6) Simplify using exponent rules.

$$\frac{30a^9b^6c^3}{5a^2b^5c} =$$

7) Re-write in the form $2^?a^?$

$$(2a)^3 =$$

8) Re-write in the form $\frac{3^?}{b^?}$

$$\left(\frac{3}{b}\right)^4 =$$

9) Simplify using exponent rules.

$$(x^3)^5 =$$

10) Re-write in the form $\frac{x^?}{2^?y^?}$

$$\left(\frac{x^2}{2y^3}\right)^4 =$$

11) Simplify using exponent rules.

$$\left(\frac{-2a^2}{b}\right)^3\left(\frac{a^3b^2}{a}\right)^4 =$$

12) Simplify using exponent rules.

$$m^0 =$$

13) Simplify using exponent rules.

$$\frac{a^0b^0c^0}{l^0w^0z^0} =$$

14) Write the following using only positive exponents.

$$5^{-6} =$$

15) Write the following using only positive exponents.

$$\frac{1}{b^{-8}} =$$

16) Simplify using exponent rules. Write your answer using only positive exponents.

$$\left(\frac{x^2}{y^3}\right)^{-4} =$$

17) Simplify using exponent rules. Write your answer using only positive exponents.

$$\frac{16a^5b^7}{4a^8b} \cdot \frac{15ab^{-2}}{(3ab)^{-1}} =$$

18) Simplify using exponent rules. Write your answer using only positive exponents.

$$\frac{(2x^2y^4)^2}{(2xyz^{-2})^{-4}} =$$

19) Simplify using exponent rules. Write your answer using only positive exponents.

$$(4a^0b^{-4}c^4)^3(4b^{-2}c^6) =$$

20) Simplify using exponent rules. Write your answer using only positive exponents.

$$\frac{4ab^4 \cdot -a^5c}{a^2b^{-6}c^4} \cdot \left(\frac{a^3c^7}{b^7}\right)^2 =$$

Answers

1. 8^{10}	**2.** 13^{7}
3. $\left(\frac{1}{2}\right)^{11}$	**4.** $(-4)^{4}$
5. $x^{6}y^{5}$	**6.** $6a^{7}bc^{2}$
7. $2^{3}a^{3}$	**8.** $\frac{3^{4}}{b^{4}}$
9. x^{15}	**10.** $\frac{x^{8}}{2^{4}y^{12}}$
11. $(-2)^{3}a^{14}b^{5}$	**12.** 1
13. 1	**14.** $\frac{1}{5^{6}}$
15. b^{8}	**16.** $\frac{y^{12}}{x^{8}}$
17. $\frac{180b^{5}}{a}$	**18.** $\frac{2^{6}x^{8}y^{12}}{z^{8}}$
19. $\frac{4^{4}c^{18}}{b^{14}}$	**20.** $-\frac{4a^{10}c^{11}}{b^{4}}$