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## Worksheet 2-1: Exponents \& Powers

## Exponent Review:

$$
\text { Exponential Form } \quad \begin{aligned}
2^{4} & =2 \times 2 \times 2 \times 2 \text { Product Form of the Power } \\
& =\mathbf{1 6} \text { Standard Form of the Power }
\end{aligned}
$$

$2^{4}$ is called the power, where $\mathbf{2}$ is the base of the power and $\mathbf{4}$ is the exponent of the power

1. Identify the base and exponent for each of the following powers.
(a) $2^{3}$
(b) $5^{12}$
(c) $12^{5}$
(d) $2^{123}$
Base $=$
Base $=$
Base =
Base =
Exponent $=$
Exponent =
Exponent $=$
Exponent =
(e) $(-2)^{43}$
(f) $(-5)^{7}$
(g) $(-11)^{5}$
(h) $(-3)^{-123}$
Base $=$
Base $=$
Base $=$
Base $=$
Exponent $=$
Exponent $=$
Exponent =
Exponent =
2. Write each expression as a power.
(a) $10 \times 10 \times 10$
(b) $2 \times 2 \times 2$
(c) $(5)(5)(5)(5)$

Base $=$
Base $=$
Base $=$
Exponent =
Exponent $=$
Exponent =
Power $=$
Power $=$
Power $=$
(d) (3)(3)(3)(3)(3)
(e) $(-2)(-2)$
(f) $(-4)(-4)(-4)(-4)$

Base $=$
Base $=$
Base $=$
Exponent $=$
Exponent =
Exponent $=$
Power =
Power $=$
Power $=$
3. Identify the base and exponent of each power and write the power in product form.
(a) $7^{3}$
(b) $(-7)^{3}$
(c) $-7^{3}$

Base $=$
Base $=$
Base $=$
Exponent $=$
Exponent $=$
Exponent =
Product $=$
Product $=$
Product $=$
$\qquad$
$\qquad$
(d) $6^{4}$
(e) $(-6)^{4}$

Base =
Exponent $=$
Product $=$
(g) $a^{2}$

Base $=$
Exponent $=$
Product $=$
(h) $(-a)^{2}$

Base =
Exponent $=$
Product $=$

Base $=$
Exponent =
Product $=$
(f) $-6^{4}$

Base $=$
Exponent =
Product $=$
(i) $-a^{2}$

Base $=$
Exponent =
Product $=$
4. Evaluate the following powers using a scientific calculator.
(a) $2^{5}$
(b) $3^{7}$
(c) $(-5)^{3}$
(d) $-5^{3}$
(e) $-4^{4}$
(f) $(-4)^{4}$
5. Evaluate. Show your steps. **Apply BEDMAS**
(a) $2^{3}+4^{2}-5^{2}$
(b) $(-2)^{5}+2^{3} \div 8$
(c) $7^{2} \times 2^{3} \div\left(3^{3}+22\right)$
(d) $(-4)^{3}-\left(3^{2} \div 27\right)$

Answers: 4. (a) 32, (b) 2187, (c) -125 , (d) -125 , (e) -256 , (f) 256; 5. (a) -1 , (b) -31 , (c) 8 , (d) $-64 \frac{1}{3}$

