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UNIT 6 LESSON 1

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| --- | --- |
| AIM: | SWBAT evaluate expressions  |

**THINK ABOUT IT!**

Complete the table below.

|  |  |  |
| --- | --- | --- |
| **Multiplication Expression** | **Product** | **Exponential Expression** |
| --- | 1 | 30 |
| 3 | 3 |  |
| 3 x 3 |  | 32 |
|  | 27 | 33 |
| 3 x 3 x 3 x 3 |  |  |

Explain how you came up with the exponential expressions.

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Key Point

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**Interaction with New Material**

Example 1) Expressions A, B, and C are below. Which expression or expressions have the same value as 53?

A: 35

B: 62 ÷ 32 + 112

C: 66 – 5 + 43

**PARTNER PRACTICE**

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| *Bachelor Level* |

1. For each expression below, identify the base and then exponent. Then evaluate each expression
2. 42 =

Base: \_\_\_\_\_\_\_\_\_\_\_\_ Exponent: \_\_\_\_\_\_\_\_\_\_\_\_

1. 123 =

Base: \_\_\_\_\_\_\_\_\_\_\_\_ Exponent: \_\_\_\_\_\_\_\_\_\_\_\_

1. 0.82 =

Base: \_\_\_\_\_\_\_\_\_\_\_\_ Exponent: \_\_\_\_\_\_\_\_\_\_\_\_

1. 120=

Base: \_\_\_\_\_\_\_\_\_\_\_\_ Exponent: \_\_\_\_\_\_\_\_\_\_\_\_

1. Rewrite each expression with an exponential expression.
2. 9 x 9 x 9 =

Base: \_\_\_\_\_\_\_\_\_\_\_\_ Exponent: \_\_\_\_\_\_\_\_\_\_\_\_

1. (2)(2)(2)(2)(2) =

Base: \_\_\_\_\_\_\_\_\_\_\_\_ Exponent: \_\_\_\_\_\_\_\_\_\_\_\_

1. $\frac{1}{2}$ • $\frac{1}{2}$ • $\frac{1}{2}$ • $\frac{1}{2}$ =

Base: \_\_\_\_\_\_\_\_\_\_\_\_ Exponent: \_\_\_\_\_\_\_\_\_\_\_\_

|  |
| --- |
| *Master Level* |

1. Evaluate each expression
2. 63 + 7 x 4
3. $4+9^{2}÷3×2-2$

**INDEPENDENT PRACTICE**

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| --- |
| *Bachelor Level* |

1. Select all of the expressions below that are equivalent to 83
	1. 82 x 81
	2. 8 x 8 x 8
	3. 3 x 3 x 3 x 3 x 3 x 3 x 3 x 3
	4. 24
	5. 512
	6. 6,561
2. Evaluate each expression
	1. 73 + 70
	2. $(\frac{2}{3})^{3 }$

3) Rewrite each expression with an exponential expression.

1. 7 x 7 x 7 x 7 x 7 x 7

1. (0.1)(0.1)(0.1)(0.1)(0.1)
2. $\frac{3}{5}$ • $\frac{3}{5}$ • $\frac{3}{5}$ • $\frac{3}{5}$

|  |
| --- |
| *Master Level* |

1. Write an expression that represents the prime factorization of 72. Simplify your expression to include exponents.
2. Expressions A, B, and C are shown below.

 A B C

202 – 182  8 x 42 + 24 152 – 34

Which expression or expressions have the same value as 122?

1. Evaluate the expressions
	1. $90-5^{2}×3.5$
	2. 6.4 – 22 ÷ 2 + 0.32
2. Four scholars were asked to evaluate the expression 23 – 8 + 6 – 22. Who responded correctly? Show your work

(a) Alex’s answer: 12 (b) Amy’s answer: 8

(c) Cory’s answer: 2 (d) Kenneth’s answer: 6

|  |
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| *PhD Level* |

1. The expressions 4 • 42 • 8 • 2 and 45 are equivalent. Show that the two expressions are equivalent. Describe the steps that can be applied to 4 • 42 • 8 • 2 to create the equivalent expression 45.

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**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**EXIT TICKET**

|  |  |  |  |
| --- | --- | --- | --- |
| Self-assessment | I mastered the learning objective today. | I am almost there.  | Need more practice and feedback. |
| Teacher feedback | You mastered the learning objective today. | You are almost there.  | You need more practice and feedback. |

1. Using the expression 3 x 3 x 3 x 3, read each statement below and decide if it is “true” or “false.”

|  |  |  |
| --- | --- | --- |
| Statement | True | False |
| In exponential form, 3 x 3 x 3 x 3 = 34 |  |  |
| 3 x 3 x 3 x 3 = 12 |  |  |
| When 3 x 3 x 3 x 3 is written in exponential form, the base is 4 and the exponent is 3 |  |  |
| When 3 x 3 x 3 x 3 is written in exponential form, the base is 3 and the exponent is 4 |  |  |

2. Evaluate 12$×\frac{1}{2}+$43