Integer Bases and Zero Exponents
 Answers

**Number**

**Unit 3 Line Master 1c**

1. For example:

|  |  |
| --- | --- |
| **Power** | **Standard Form** |
| $$2^{4}$$ | 16 |
| $$2^{3}$$ | 8 |
| $$2^{2}$$ | 4 |
| $$2^{1}$$ | 2 |
| $$2^{0}$$ | 1 |

2.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Power** | **Base** | **Exponent** | **Expanded Form** | **Standard Form** |
| $$2^{3}$$ | 2 | 3 | 2 × 2 × 2 | 8 |
| $$\left(-2\right)^{3}$$ | ‒2 | 3 | (‒2) × (‒2) × (‒2) | ‒8 |
| $$-(2^{3})$$ | 2 | 3 | ‒(2 × 2 × 2) | ‒8 |
| $$-2^{3}$$ | 2 | 3 | ‒(2 × 2 × 2) | ‒8 |
| $$-\left(-2\right)^{3}$$ | ‒2 | 3 | ‒((‒2) × (‒2) × (‒2)) | 8 |

3. $ $

|  |  |
| --- | --- |
| **Positive** | **Negative** |
| $ 1^{10} (-1)^{100}-\left(-1^{6}\right) $  | $-(1^{10})$ $ -1^{2}$ $ (-1)^{3}$ $-(1^{9})$  |

4. a) 14 cm
 b) 4 cm

5. For example: I determined the value of the powers of 3 with exponents 1 to 8:

$3^{1}=3$

$3^{2}=9$

$3^{3}=27$

$$3^{4}=81$$

$3^{5}=243$

$3^{6}=729$

$3^{7}=2187$

$3^{8}=6561$

There is a repeating pattern in the ones digits (3, 9, 7, 1). Every 4th number ends in 1.
1992 is divisible by 4, so I know the ones digit of the value of $3^{1992}$ will be 1.