

Number
Unit 2 Line Master 1c
Integer Bases and Zero Exponents
Answers

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	$2 \times 2 \times 2$	8
$(-2)^3$	-2	3	$(-2) \times (-2) \times (-2)$	-8
$-(2^3)$	2	3	$-(2 \times 2 \times 2)$	-8
-2^3	2	3	$-(2 \times 2 \times 2)$	-8
$-(-2)^3$	-2	3	$-((-2) \times (-2) \times (-2))$	8

3.

Positive	Negative
1^{10} $(-1)^{100} - (-1^6)$	$-(1^{10})$ -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:

$$\begin{aligned}
 3^1 &= 3 \\
 3^2 &= 9 \\
 3^3 &= 27 \\
 3^4 &= 81 \\
 3^5 &= 243 \\
 3^6 &= 729 \\
 3^7 &= 2187 \\
 3^8 &= 6561
 \end{aligned}$$

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.