Exponents: Diagnostic Assessment

1. When you multiply powers of the same base, <u>add</u> the exponents: $(5^2)(5^4) = 5^6$

2. D

$(-3)^6 \times (-3)^4 = (-3)^{10}$

3. When you divide powers of the same base, <u>subtract</u> the exponents: $(-3)^6 \div (-3)^4 = (-3)^{10}$

4. When simplifying a "power of a power", you <u>multiply</u> the exponents: $(5^2)^3 = 5^6$

5. C

$(10^4)^2 = (10)^8$

6. Each of these expressions is equal to 1. Any base raised to zero (as an exponent) is equal to 1.
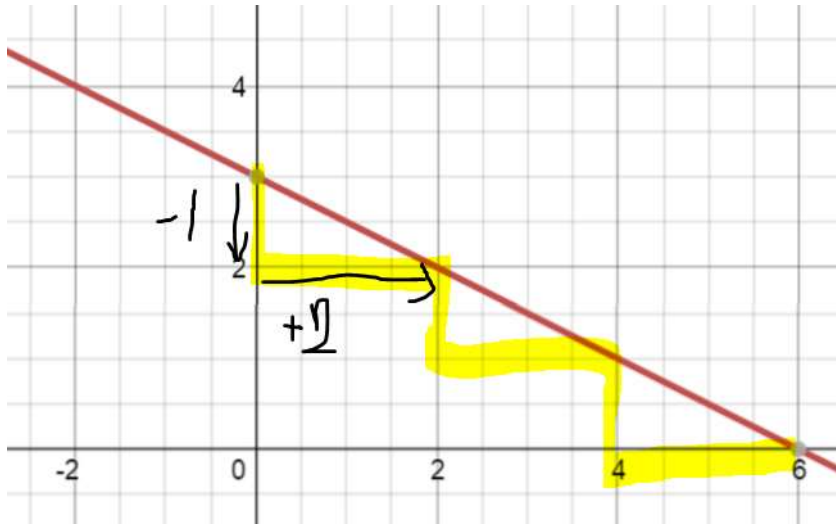
$(-2)^0, \; 3^0, \; (1/2)^0$

7. C

This is called the "Negative Exponent Rule".

$\frac{1}{2^3} = 2^{-3}$

8. y = 3x + 2 has an *initial value* of 2 (also known as the y-intercept for any graph that passes through the y-axis).

9. The slope in this graph is $\frac{-1}{2}$ (see the diagram provided).

10. P = 2(7 + 10) = 2(17) = 34

11. 12.25% = 0.1225

12. 7% of \$200 = 0.07(\$200) = \$14

13. 972.17

$$950 + 950(0.04)\left(\frac{7}{12}\right)$$

$$= 950 + \frac{950(0.04)(7)}{12}$$

$$= 950 + 22.17$$

$$= 972.17$$