

## 16.1 Exercises Pg. 714 # 8, 16, 26 (# 18, 28 optional) [ANSWER KEY]

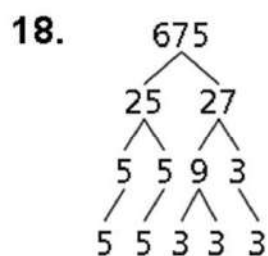
8.  $(-4) \cdot (-4) \cdot (-4) \cdot y \cdot y$

Because  $-4$  is used as a factor 3 times, the exponent is 3.

Because  $y$  is used as a factor 2 times, the exponent is 2.

So,  $(-4) \cdot (-4) \cdot (-4) \cdot y \cdot y = (-4)^3 y^2$ .

16.  $-\left(\frac{1}{9}\right)^3 = -\left(\frac{1}{9} \cdot \frac{1}{9} \cdot \frac{1}{9}\right) = -\frac{1}{729}$



The prime factorization of 675 is  $5 \cdot 5 \cdot 3 \cdot 3 \cdot 3$ ,

or  $5^2 \cdot 3^3$ .

26.  $\left| \left(-\frac{1}{2}\right)^3 \div \left(\frac{1}{4}\right)^2 \right| = \left| -\frac{1}{8} \div \frac{1}{16} \right| = \left| -\frac{1}{8} \cdot \frac{16}{1} \right| = |-2| = 2$

28. a.  $C = 100(0.99988)^t = 100(0.99988)^4 \approx 99.95$

After 4 years, the amount of carbon-14 remaining is about 99.95 grams.

b. percent remaining =  $\frac{\text{amount remaining}}{\text{original amount}}$

$$= \frac{99.95}{100}$$

$$= 99.95\%$$

After 4 years, 99.95% of the carbon-14 remains.