

# AA PREP—EVALUATING EXPONENTS—WORKSHEET #2

KE-1

Evaluate each expression without using a calculator.

1) $5^{-1} = \frac{1}{5^1} = \frac{1}{5}$	2) $5^2 = 25$
3) $5^0 = 1$	4) $(-5)^3 = -125$
5) $-5^2 = -1 \cdot 5^2 = -1 \cdot 25 = -25$	6) $\left(-\frac{1}{5}\right)^3 = \frac{(-1)^3}{(5)^3} = \frac{-1}{125}$
7) $(-6)^0 = 1$	8) $-6^0 = -1 \cdot 6^0 = -1 \cdot 1 = -1$
9) $-(-\frac{1}{6})^2 = -1 \cdot \frac{(-1)^2}{(6)^2} = -1 \cdot \frac{1}{36} = -\frac{1}{36}$	10) $-6^3 = -1 \cdot 6^3 = -1 \cdot 216 = -216$
11) $\left(-\frac{1}{6}\right)^3 = \frac{(-1)^3}{(6)^3} = \frac{-1}{216}$	12) $\left(\frac{1}{6}\right)^{-3} = \left(\frac{6}{1}\right)^3 = \frac{6^3}{1^3} = 216$
13) $81^{\frac{1}{2}} = \sqrt{81} = 9$	14) $27^{\frac{1}{3}} = \sqrt[3]{27} = 3$
15) $64^{\frac{2}{3}} = \sqrt[3]{64^2} = \sqrt[3]{4096} = 16$	16) $625^{\frac{1}{4}} = \sqrt[4]{625} = 5$
17) $8^{\frac{1}{3}} = \sqrt[3]{8} = 2$	18) $64^{\frac{8}{6}} = 64^{\frac{4}{3}} = \sqrt[3]{64^4} = \sqrt[3]{16777216} = 4^4 = 256$
19) $\left(\frac{1}{216}\right)^{\frac{2}{3}} = \sqrt[3]{\frac{1}{216^2}} = \sqrt[3]{\frac{1}{46656}} = \left(\frac{1}{6}\right)^2 = \frac{1}{36}$	20) $\left(\frac{16}{9}\right)^{\frac{3}{2}} = \sqrt{\frac{16^3}{9^3}} = \sqrt{\frac{4096}{729}} = \left(\frac{4}{3}\right)^3 = \frac{64}{27}$