Algebra 1 – Unit 5 Assessment Practice Name _____ Date _____ Period ___

Part A: Working with Exponents and Radicals [R-RN.A.1]

1. **Simplify** each expression completely.

A) 100^{0} B) $64^{\frac{1}{2}}$ C) 3^{-3} D) $27^{\frac{4}{3}}$

E) $4^{-\frac{1}{2}}$ F) $100^{-\frac{3}{2}}$ G) $4p^{0} \bullet x^{2} \bullet 2x^{-3}$ H) $\frac{a^{2}b^{3}}{2a} \bullet \frac{40}{a^{8}b^{2}}$

2. **Rewrite** from radical form into exponential form, *or vice versa*.

A) $169^{\frac{1}{2}}$ B) $\sqrt[3]{10^{2}}$ C) $12^{\frac{3}{4}}$ D) $\left(\sqrt[3]{12}\right)^{2}$

3. **Simplify** each of the expressions below completely. **Justify** by writing the property that you used and writing in expanded form.

Properties: *Product Rule, Power Rule, Quotient Rule, Power of Product, Power of Quotient*

A) $\left(5^{3}\right)^{-2}$ B) $\left(2x^{4}\right)^{3}$ C) $\left(\frac{14x^{3}}{2y}\right)^{2}$ D) $\frac{36b^{8}}{4b^{2}}$ E) $144m^{-2}m^{-5}$

Part B: Working with Polynomials [A-APR.A.1]

4. **Simplify** each expression completely.

A) $(3-2h+8h^2)+(-h+4h^2+2h)$

B) $(1-b-b^2)-(7b+7b^2-7)$

C) $(5k+4)(k-7)$

D) $(k-1)^2$

5. Cathy plans to create a triangular planter bed. Two of the sides are the same length, but the other side is 4 feet longer than the first sides.

A) **Sketch** the planter beds.
Label the lengths using appropriate expressions.

B) Cathy measures the total length of the planter beds once they are arranged. She finds the total length to be 25 feet. **Find** the length of the longest side.