

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Assignment - Answers**

Simplify the following expressions to a single power, where possible. Do not evaluate. Show all your work.

a.  $3^4 \times 3^5 = 3^9$     b.  $5^6 \times 7^3$     c.  $\frac{972^{10}}{972^8} = 972^2$     d.  $\frac{64}{4^2} = 4$

e.  $\frac{4^3}{5^7}$     f.  $3^7 \times 9^2 = 3^{11}$     g.  $\frac{8^5}{8} = 8^4$     h.  $\frac{5^3}{25} = 5$

i.  $\left(\frac{13^5}{13^2}\right)^7 = 13^{21}$     j.  $(12^4)^{16} = 12^{64}$     k.  $\frac{4^3}{2^3} = 2^3$     l.  $((15^3)^3)^2 = 15^{18}$

m.  $y^{64} \times y^{42} = y^{106}$     n.  $a^9 \times b^4$     o.  $\frac{q^{78}}{q^{42}} = q^{36}$     p.  $\frac{a^{23}}{b^{17}}$

q.  $p^{90} \times q^{12}$     r.  $(x^{13})^4 = x^{52}$     s.  $\frac{z^8}{z} = z^7$     t.  $\frac{c^{27}}{c^{12}} = c^{15}$

u.  $\left(\frac{d^9}{d^3}\right)^4 = d^{24}$     v.  $\left(\frac{m^{90}}{m^{80}}\right)^4 = m^{40}$     w.  $((f^2)^2)^2 = f^8$     x.  $\frac{1}{(k^4)^3} = \frac{1}{k^{12}}$