

Week 7 – Math 170

Problems of the week.

1) If $x = 5^2$, then $x^x = ?$

a) 5^5

b) 5^{25}

c) 5^{50}

d) 5^{125}

$$(5^2)^{5^2} \rightarrow (5^2)^{25} = 5^{50}$$

2) Solve for y : $\sqrt{8}^{\sqrt{24-\sqrt{y}}} = 64$

$$(8^{\frac{1}{2}})^{\sqrt{24-\sqrt{y}}} = 8^2$$

Set exponents equal

$$2 \cdot \left(\frac{1}{2} \sqrt{24-\sqrt{y}} \right) = (2) \cdot 2$$

$$(\sqrt{24-\sqrt{y}})^2 = (4)^2$$

$$\begin{array}{r} 24 - \sqrt{y} = 16 \\ -24 \quad -24 \end{array}$$

$$\frac{-\sqrt{y}}{-1} = \frac{-8}{-1}$$

$$\sqrt{y} = 8$$

$$y = 64$$