

Metro Math Meet - West High
January 16, 2011
Round 4

Score

Name: _____

School: _____

Team: _____

All answers must be in simplified, reduced form. Radicals and forms of π are acceptable.

1) Given $192^3 \cdot 4^5$, what is the units digit of the product?

$$192^3 \text{ ends in } 8$$

$$4^5 \text{ ends in } 4$$

2

2) The average (mean) of x and y is $\frac{3y}{4}$. What is $\frac{x}{y}$?

$$\frac{x+y}{2} = \frac{3y}{4}$$

$$4x+4y=6$$

$$2x=y$$

$$\frac{x}{y} = \frac{x}{2x} = \frac{1}{2}$$

$\frac{1}{2}$

3) The ratio of the areas of two circles is 16:1. If the diameter of the smaller circle is 3, what is the diameter of the larger circle?

$$\text{radius small } \odot = \frac{3}{2}$$

$$\text{radius large } \odot = x$$

$$\frac{A_{\text{large}}}{A_{\text{small}}} = \frac{16}{1}$$

$$\frac{\pi x^2}{\pi \frac{9}{4}} = \frac{16}{1}$$

$$\frac{\pi 9}{4}$$

$$x^2 = 36$$

$$x = 6$$

12

4) If $|x+y-17|+|x-y-5|=0$, what is the product xy ?

$$\left. \begin{array}{l} x+y-17+x-y-5=0 \\ 2x=22 \\ x=11 \end{array} \right\} \begin{array}{l} x+y-17-x+y+5=0 \\ 2y=12 \\ y=6 \end{array}$$

66