

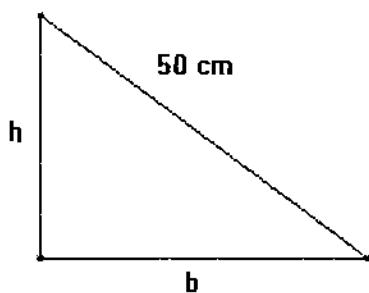
King Fahd University of Petroleum and Minerals
Math Prep-Year Program
Math 001-Term 042

Name: KEY SEC _____ ID#: _____

1. If $\frac{(i-1)^2+1}{i-\sqrt{-1}\sqrt{-4}} + \sqrt[3]{-64} + i^{-81} = A + Bi$, find $25AB$

$\frac{i^2 - 2i + 1 + 1}{i - (i)(2i)} = 4 + \frac{1}{i}$ $\frac{(2i)(2-i)}{(2+i)(2-i)} = 4 - i$ $\frac{-5i}{5} = 4 - i$	$-4 - 2i$ $-4 - 2i = A + Bi$ $A = -4, B = -2$ $25AB = 25(8)$ $= 200$
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2. The following right angle triangle has perimeter 100cm. If the height is two-third the base, find the area of the triangle.



$$50 + h + b = 100$$

$$h + b = 50 \quad \text{--- (1)}$$

$$h = \frac{2}{3}b \quad \text{--- (2)}$$

Substitute (2) in (1):

$$\therefore \text{Area} = \frac{1}{2}(20)(30) = 300 \text{ cm}^2$$

$$\frac{2}{3}b + b = 50$$

$$5b = 150$$

$$b = 30 \Rightarrow h = 20$$

3. If $A = \frac{1}{2}(B+x)y$, and $y \neq 0$, SOLVE FOR B

$$A = \frac{1}{2}(B+x)y$$

$$\frac{2A}{y} = B + x$$

$$\therefore B = \frac{2A}{y} - x$$

$$\Rightarrow B = \frac{2A - xy}{y}$$