Name _____ Date _____

Law of Cosines - Guided Lesson Explanation

Explanation # 1

Step 1) $b^2 = a^2 + c^2 - 2ac\ \text{Cos}\ B$

$b^2 = 12^2 + 12^2 - 2(12)(12)\text{Cos}\ 120°$

$b^2 = 144 + 144 - 288(-0.42261826174)$

$b^2 = 288 - (-121.714059381)$

$b^2 = 409.7141$

$b = 20.2$

So, the answer is 20.2

Explanation # 2

Step 1) $y^2 = x^2 + z^2 - 2xz\ \text{Co9s}\ Y$

$y^2 = 7^2 + 18^2 - 2(7)(18)\text{Cos}\ 30°$

$y^2 = 49 + 324 - 2(7)(18) \times \frac{\sqrt{3}}{2}$

$y^2 = 49 + 324 - 126 \times \sqrt{3}$

$y^2 = 373 - 126 \times \sqrt{3}$

$y^2 = 373 - 218.238401754$

$y^2 = 154.76$

$y = 12.4$

$y = 12$

So, the answer is 12

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Explanation # 3

Step 1) $b^2 = a^2 + c^2 - 2ac\ \text{Cos}\ B$

$b^2 = 9^2 + 9^2 - 2(9)(9)\text{Cos}\ 42°$

$b^2 = 81 + 81 - 162(0.74314482547)$

$b^2 = 162 - 120.38946172614$

$b^2 = 41.61$

$b = 6.4$

So, the answer is 6.4