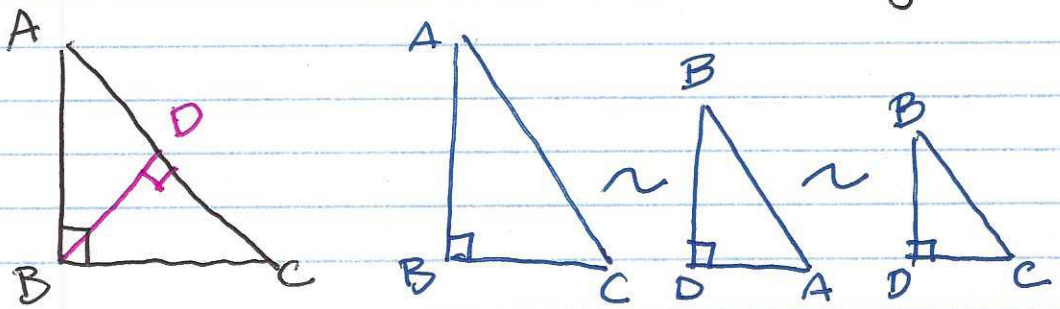
P4

Similar Right Triangles

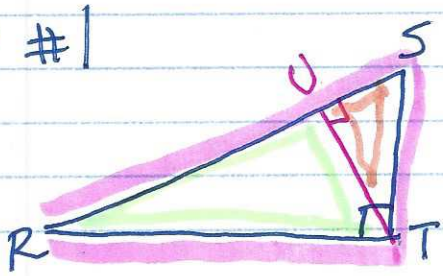
9.3
(1)

Theorem 9.6 Right △ Similarity Theorem

if the altitude is drawn to the hypotenuse of a Rt △, then the ~~original~~ two △'s formed are similar and are similar to the original △



Ex #1

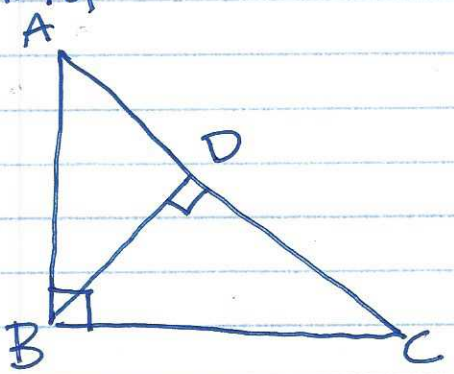


IDENTIFY ~ △

$\triangle STR \sim \triangle TUR \sim \triangle SUT$

$\frac{SU}{ST} = \frac{TU}{ST} = \frac{SU}{TU}$ $\quad \frac{UR}{TR} = \frac{UT}{UR}$ $\quad \frac{RT}{RS} = \frac{TS}{RT}$

Ex #1a



DBC
BDC

$\triangle ACB \sim \triangle BCD \sim \triangle ABD$

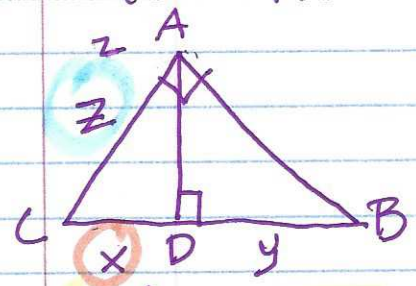
$\frac{DC}{BC} = \frac{DB}{DC}$ $\quad \frac{BD}{AB} = \frac{AD}{BD}$ $\quad \frac{BC}{AC} = \frac{AB}{BC}$

HOMEWORK pgs 482-483 1-4, 35, 46-49

Geometric mean

→ USING THE INFORMATION OF SIDES TO FIND OTHER SIDES

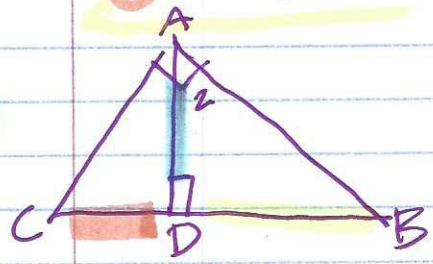
(A)



$z^2 = x \cdot x+y$

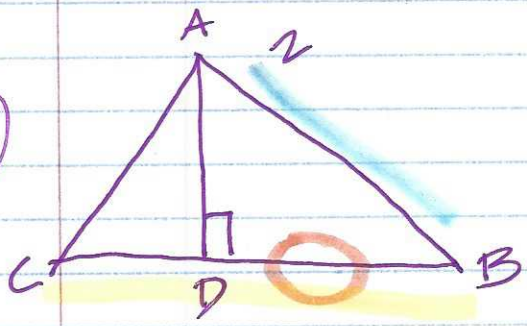
$(AC)^2 = CD\,(CB)$

(B)



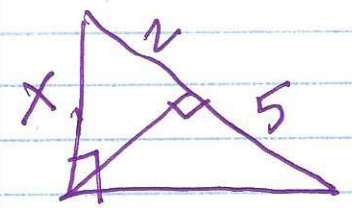
$(AD)^2 = CD \cdot DB$

(C)



$(AB)^2 = (CD+DB)(DB)$

EX#1a

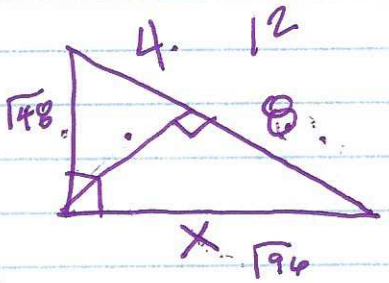


$x^2 = 2(2+5)$

$x^2 = 14$

$x = \sqrt{14}$

EX#1b



$x^2 = (4+8)8$

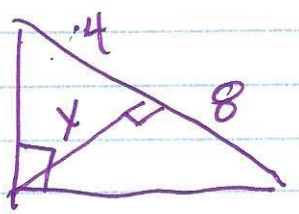
$x^2 = (12)8$

$x^2 = 96$

$x = \sqrt{96}$

$\sqrt{96}^2 + \sqrt{48}^2 = 144$

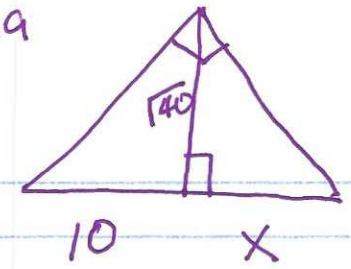
EX#1c



$x^2 = 8 \cdot 4$

$x^2 = 32$ $\quad x = \sqrt{32}$

P4 Ex#2a

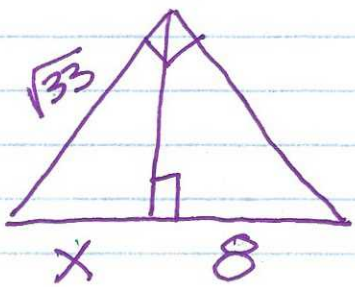


$10x = \sqrt{40}^2$

$\frac{10}{10}x = \frac{40}{10}$

$x = 4$

Ex#2b



$\sqrt{33}^2 = x(x+8)$

$33 = x^2 + 8x$

$Ax^2 + Bx^2 + C = 0$

$x^2 + 8x - 33 = 0$

A: 1 B: 8 C: -33

$\frac{-b \pm \sqrt{b^2-4ac}}{2a}$ $\frac{-8 \pm \sqrt{8^2-4(1)(-33}}{2(1)}$

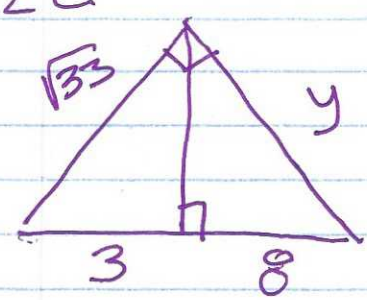
$\frac{-8 \pm \sqrt{64+132}}{2}$

$\frac{-8 \pm \sqrt{196}}{2} = \frac{-8 \pm 14}{2}$

-4 ± 7

$x = 3$ or $x = -11$

Ex#2c



$8(8+3) = y^2$

$88 = y^2$

$\sqrt{88} = y$

Hw 482-483 5-28 odd