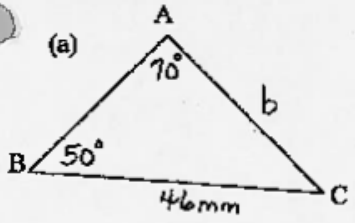
Useful Formulas: SOH CAH TOA $c^2 = a^2 + b^2$

$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C} \qquad c^2 = b^2 + a^2 - (2ab\cos C) \qquad \cos C = \frac{a^2 + b^2 - c^2}{2ab}$$

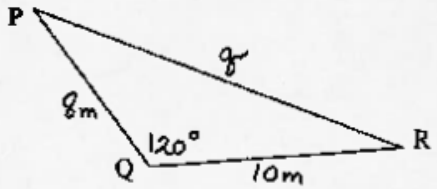
MBF3C Quiz #2 Sine / Cosine Laws Name: _____

1. Find the missing unknown in each of the following situations:

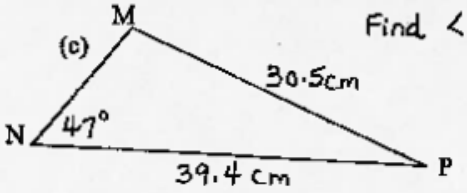
(a)



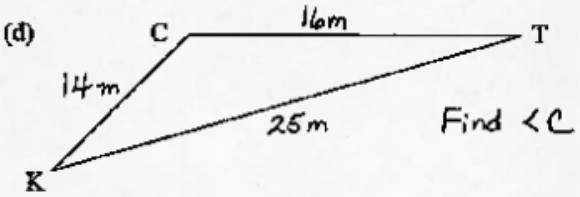
(b)



(c) Find ∠P



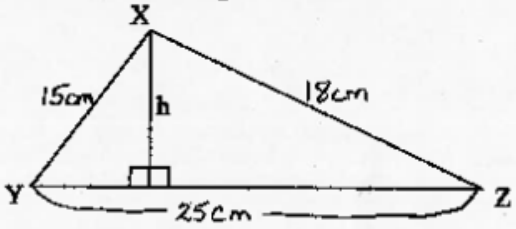
(d)



Find ∠C

2. Solve ΔXYZ, where $\angle X = 100^0$, $y = 12.3$ cm and $z = 16.5$ cm.

3. Find h in the diagram shown below.

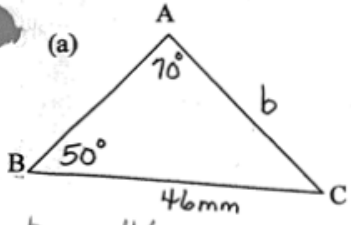


MBF3C Quiz #2 Sine / Cosine Laws Name: Master

23

1. Find the missing unknown in each of the following situations:

(a)



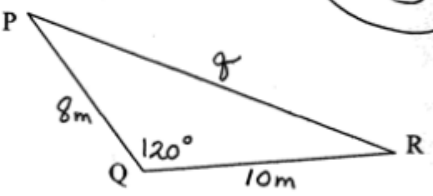
$\frac{b}{\sin 50} = \frac{46}{\sin 70}$ ✓

$b = \frac{46 \sin 50}{\sin 70}$ ✓

$b \doteq 37.5$ mm ✓

3

(b)



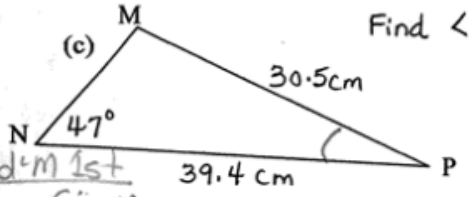
$q^2 = 8^2 + 10^2 - 2(8)(10)\cos 120°$ ✓

$q^2 = 244$ ✓

$q \doteq 15.6$m ✓

3

(c) Find $\angle P$



Find $\angle M$ 1st

$\frac{\sin M}{39.4} = \frac{\sin 47°}{30.5}$ ✓

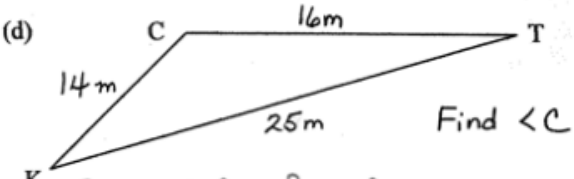
$\sin M = \frac{39.4 \sin 47°}{30.5}$

$\angle M \doteq 71°$ ✓

$\angle P = 62°$ (ASTT) ✓

3

(d) Find $\angle C$

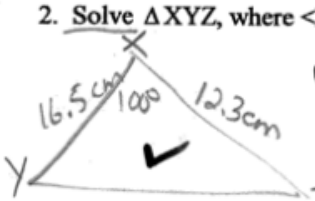


$\cos C = \frac{14^2 + 16^2 - 25^2}{2(14)(16)}$ ✓

$\angle C \doteq 113°$ ✓

2

2. Solve ΔXYZ, where $\angle X = 100°$, $y = 12.3$ cm and $z = 16.5$ cm.



$x^2 = 12.3^2 + 16.5^2 - 2(12.3)(16.5)\cos 100°$ ✓

$x^2 = 494.02$ ✓

$x \doteq 22.2$ cm ✓

$\frac{\sin Y}{12.3} = \frac{\sin 100°}{22.2}$ ✓

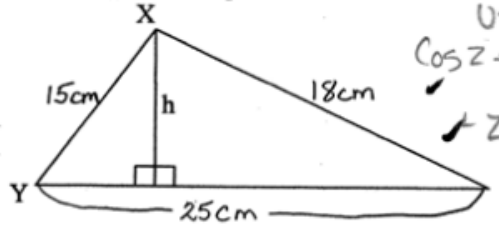
$\sin Y = \frac{12.3 \sin 100°}{22.2}$ ✓

$Y \doteq 33°$

$\angle Z = 47°$ (ASTT) ✓

7

3. Find h in the diagram shown below.



Use $\angle Z$

$\cos Z = \frac{18^2 + 25^2 - 15^2}{2(18)(25)}$ ✓

$\angle Z \doteq 36°$ ✓

$\sin 36° = \frac{h}{18}$ ✓

$h = 18 \sin 36°$ ✓

$h \doteq 10.6$ cm ✓

Use $\angle Y$

$\cos Y = \frac{15^2 + 25^2 - 18^2}{2(15)(25)}$ ✓

$\angle Y \doteq 45°$ ✓

$\sin 45° = \frac{h}{15}$ ✓

$h = 15 \sin 45°$ ✓

$h \doteq 10.6$cm ✓

5

MBF3C Quiz #2 Sine / Cosine Laws Name: Master

23

1. Find the missing unknown in each of the following situations:

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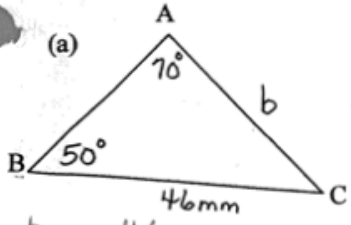

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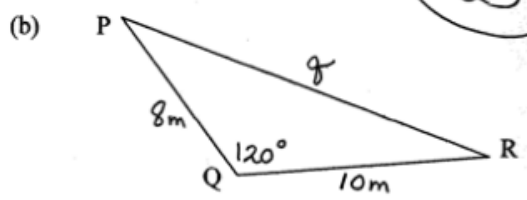

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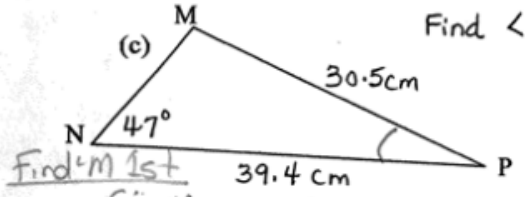

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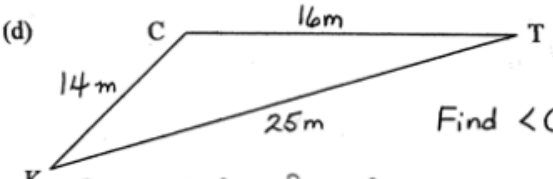

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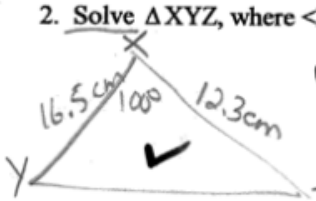

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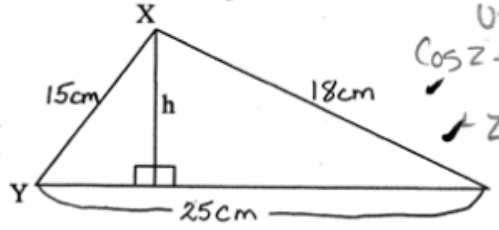

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5