

Date _____

Exam Practice

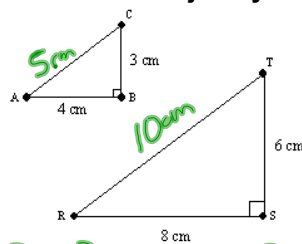
Assigned work:

- questions on hand out

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Exam Practice Questions

1) Jim claims that in the triangles below $\angle A = \angle R$. Use several methods to **justify** Jim's claim.



$$\frac{RS}{AB} = \frac{8}{4} = 2 \quad \frac{ST}{BC} = \frac{6}{3} = 2$$

$$\begin{aligned} a^2 + b^2 &= c^2 & r^2 + t^2 &= s^2 \\ 4^2 + 3^2 &= c^2 & 8^2 + 6^2 &= s^2 \\ 16 + 9 &= c^2 & 64 + 36 &= s^2 \\ \sqrt{25} &= c & \sqrt{100} &= s \\ 5 &= c & 10 &= s \end{aligned}$$

Similar triangles

$$\frac{RS}{AB} = \frac{ST}{BC} = \frac{RT}{CA}$$

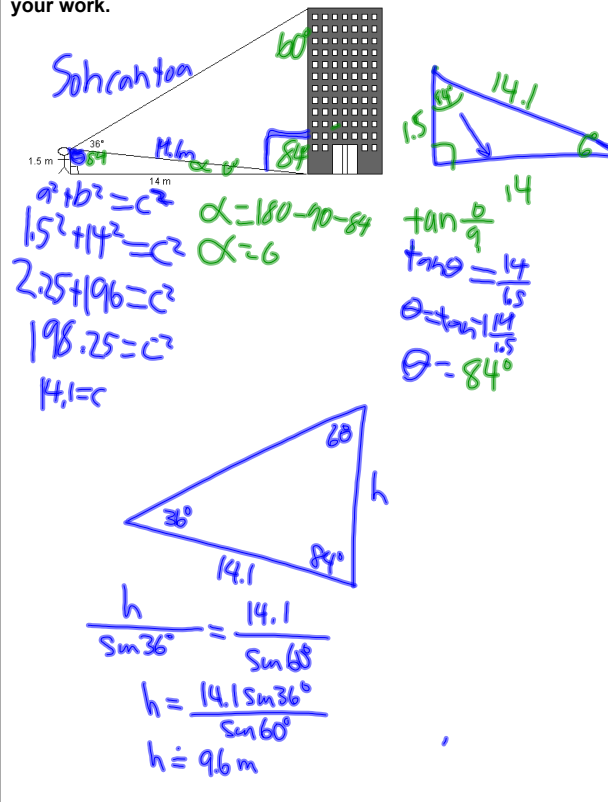
$$\frac{8}{4} = \frac{6}{3} = \frac{10}{5} \quad \odot$$

$$\begin{aligned} \tan A &= \frac{3}{4} & \tan R &= \frac{6}{8} \\ \tan A &= \frac{3}{4} & \tan R &= 0.75 \\ A &= 0.75 \tan^{-1} & R &= 0.75 \tan^{-1} \\ A &= 36.9^\circ & R &= 36.9^\circ \end{aligned}$$

$\therefore \triangle ABC \sim \triangle RST$ by SSS
 $\angle A = \angle R$
 $36.9^\circ = 36.9^\circ$
 I used to find the angles of each of the triangles by the tangent of both triangles.

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2) Jeff is 1.5 m tall. He is standing 14 m from a building. From his point of view, the bottom and top of the building are separated by 36° , as shown. How tall is the building? **Show your work.**



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3) Two continuous linear relations are defined by

Relation 1: $y = 3x - 6$

Relation 2:

x	y
2	5
6	15
8	20
14	35

Determine the point of intersection of the lines defined by these relations. **Justify** your solution.

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4) Kristen purchased a bag of jelly beans and gummy worms.
Jelly beans cost 50 cents/kg and gummy worms cost
80 cents/kg.

Kristen purchased 4kg of candy for a total of \$3.00.

State the system of equations that could be used to determine the quantity of each type of candy she purchased. (Remember to define your variables.)

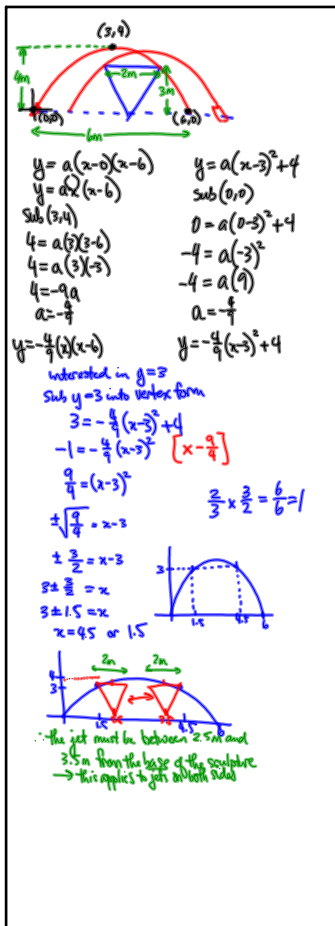
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5) Paula and Francine have each designed and tested a mini-rocket during their summer science camp at the Museum of Science and Technology. Paula's rocket lands 20 metres from the launch point and achieves a maximum height of 60 metres. Francine's rocket, launched from the same point, lands 40 metres away and also achieves a maximum height of 60 metres.

a) Why might the flight paths be different? **Explain** your thinking. (Assume that they follow parabolic trajectories.)

b) The rockets are launched towards a 20 m tall observation building. If both rockets clear the observation building, **determine** what you can about the width of the building? **Justify** your answer.

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