Class Test 2

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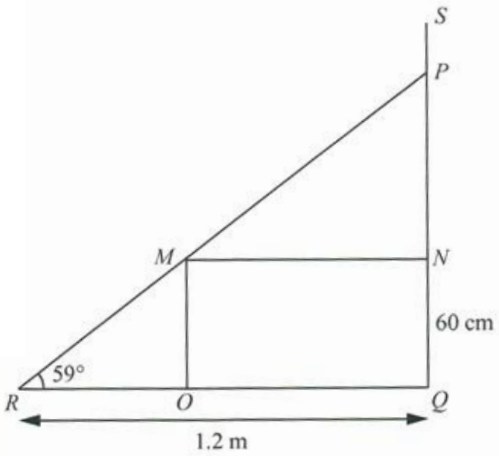
Answer all questions. Show your working clearly.

1. The diagram below shows a ladder, PR, leaning against a wall, SQ, and rectangular box $MNQO$. $RQ = 1.2$ m and $\angle MRO = 59°$. The height of the box, NQ, is 60 cm.

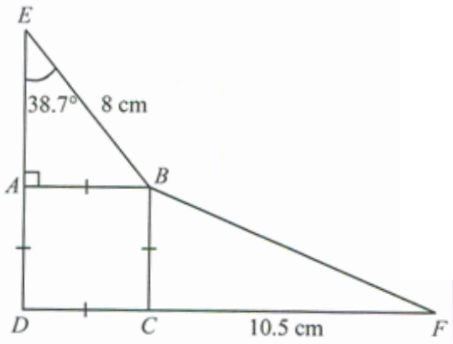


(a) Find the length of the ladder. [1]

(b) Find the length of the box. [2]

(c) PQ is $\frac{7}{8}$ of the height of the wall, SQ. If the ladder is moved up the wall to rest against S, find the new angle the ladder makes with the ground, $\angle SRQ$. [2]

2. The diagram below shows square $ABCD$. $\angle AEB = 38.7°$, $EB = 8$ cm and $CF = 10.5$ cm.



Find

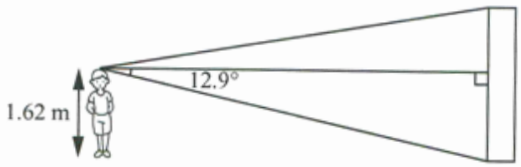
(a) AB, [1]

(b) $\angle FBC$, [1]

(c) AE, [1]

(d) the area of the entire figure. [2]

3. In the diagram below, Gabriel is standing at a distance in front of a brick wall. He is 1.62 m tall.



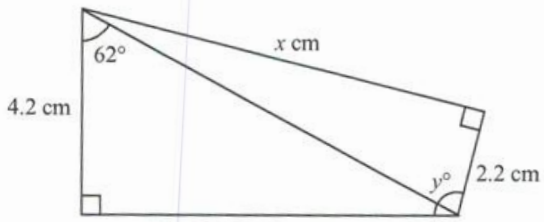
His angle of depression to the bottom of the wall is 12.9°.

(a) Find the distance Gabriel is standing away from the wall. [1]

(b) The wall is 1.18 m taller than Gabriel. Calculate his angle of elevation to the top of the wall. [1]

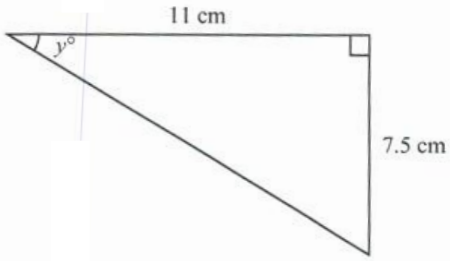
4. Find the value of the unknowns in the following diagrams.

(a)



[4]

(b)



[1]

5. In $\triangle XYZ$, $\angle XYZ = 90°$ and $YZ = 28$ cm. Given that $\tan \angle ZXY = \frac{4}{3}$, find

(a) XZ, [2]

(b) the value of $\cos \angle XZY + \cos \angle YXZ$, [2]

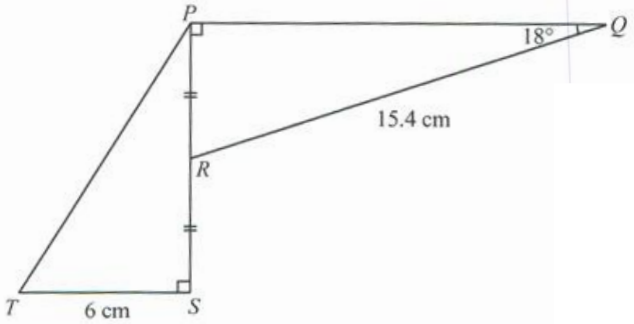
(c) $\angle XZY$. [1]

6. Calculate the unknown value in each of the following equations.

(a) $\cos 13° = \frac{1.3}{y}$ [1]

(b) $5 \tan \theta° = 17.4$ [1]

7. In the diagram below, $\triangle PQR$ and $\triangle PST$ are right-angled triangles. $PR = RS$.



Find

(a) PS, [1]

(b) $\angle PTS$, [1]

(c) PT. [1]

8. Richard is 1.85 m tall. He stands on the ground, a distance away from a tree. When he looks up at the top of a tree, which is 22.5 m tall, the angle of elevation is 67.2°.

(a) (i) Find the distance between Richard and the tree. [1]

(ii) Find the angle of depression when he looks down at the base of the tree. [1]

(b) He stands on a platform at the same spot. His angle of elevation as he looks at the top of the tree is now 65.9°. Find the height of the platform. [1]