ICSE 2017 Q8 b

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0.1. Solution:

$\angle BAQ = 30°$
$\Rightarrow \angle BAC = 30°$
also $\angle CAP = 180° - \angle CAQ \Rightarrow \angle CAP = 120°$
$\Rightarrow \angle CAD = \angle PAD = 60°$
$\Rightarrow \angle BAD = 90°$
$\Rightarrow BD$ is a diameter
$\angle ADB = \angle ACB = 30°$
[Angle made a chord at two different points]
Also $\angle CAB = 30°$
$\Rightarrow \triangle ABC$ is an isosceles triangle