04th December

Completed Exercises from the lecture on

< Right Triangles & Trigonometry >

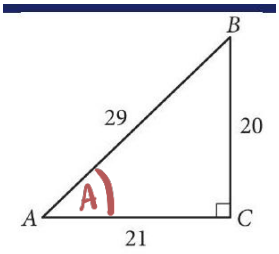
1. Medium, Pages 2-6;

Can be found below.

Right Angles & Trigonometry

Medium

(1) **902dc959** MULTIPLE CHOICE One answer only



In the figure above, what is the value of $\tan(A)$?

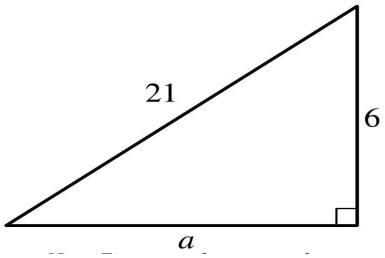
a. $\frac{20}{21}$
b. $\frac{21}{29}$
c. $\frac{21}{20}$
d. $\frac{20}{29}$

$\sin\theta = \frac{opp_\theta}{hyp}$

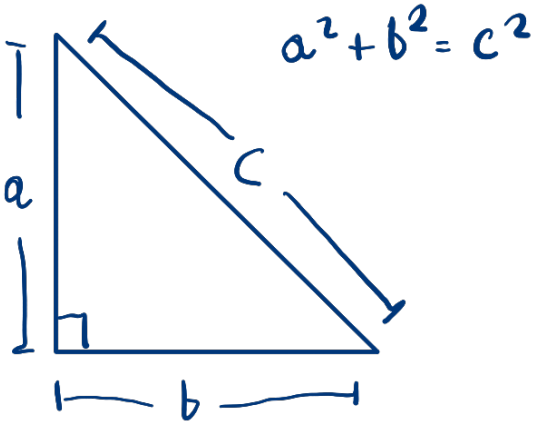
$\cos\theta = \frac{adj_\theta}{hyp}$

$\tan\theta = \frac{opp_\theta}{adj_\theta}$

(2) **de550be0** MULTIPLE CHOICE One answer only



Note: Figure not drawn to scale.



$a^2+b^2=c^2$

For the triangle shown, which expression represents the value of a ?

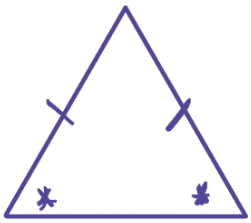
a. $\sqrt{21-6}$
b. $\sqrt{21^2-6^2}$
c. $21-6$
d. 21^2-6^2

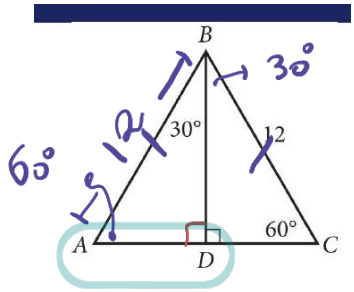
$21^2 = 6^2 + a^2$

$a^2 = 21^2 - 6^2$

$\Rightarrow a = \pm\sqrt{21^2-6^2}$

(3) **bf8d843e** MULTIPLE CHOICE One answer only





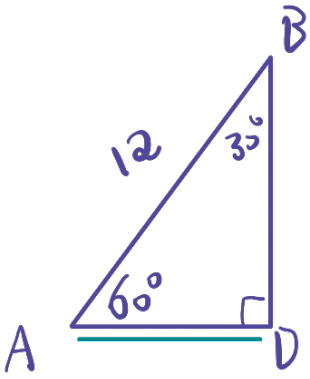
In $\triangle ABC$ above, what is the length of $\overline{AD}$?

a. $6\sqrt{2}$
b. 4
c. 6
d. $6\sqrt{3}$

$\sin\theta = \frac{\text{opp}\theta}{\text{hyp}}$

$\cos\theta = \frac{\text{adj}\theta}{\text{hyp}}$

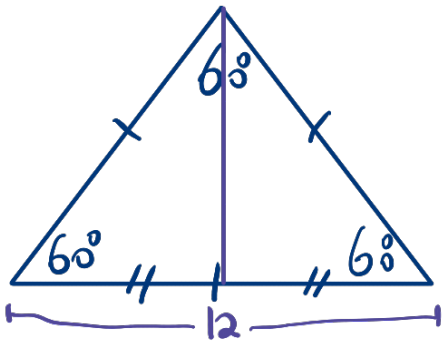
$\tan\theta = \frac{\text{opp}\theta}{\text{adj}\theta}$



$\sin 30° =$

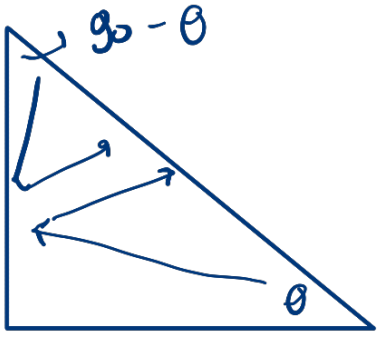
$\cos 60° = \frac{AD}{\text{hyp}}$

$\frac{1}{2} = \frac{AD}{12}$



$\therefore AD = \frac{1}{2} \cdot 12 = 6$

$\sin(\theta) = \cos(90 - \theta)$



(4) **a5aee181** MULTIPLE CHOICE One answer only

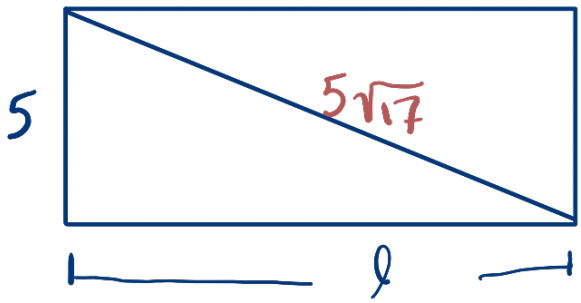
The length of a rectangle's diagonal is $5\sqrt{17}$, and the length of the rectangle's shorter side is 5 . What is the length of the rectangle's longer side?

a. $15\sqrt{2}$
b. 400
c. $\sqrt{17}$
d. 20

$\sin\theta = \frac{opp_\theta}{hyp}$

$\cos\theta = \frac{adj_\theta}{hyp}$

$\tan\theta = \frac{opp_\theta}{adj_\theta}$

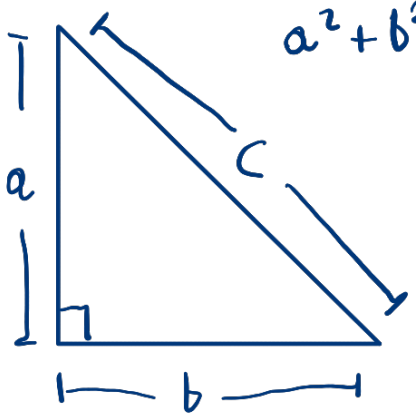


$(5\sqrt{17})^2 = 5^2 + \ell^2$

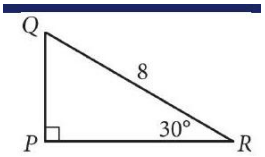
$\sqrt{(5\sqrt{17})^2 - 5^2} = \sqrt{\ell^2}$

$\sqrt{(5\sqrt{17})^2 - 5^2} = \ell$

$a^2 + b^2 = c^2$



(5) **13d9a1c3** SHORT ANSWER Case-Insensitive



In the right triangle shown above, what is the length of $\overline{PQ}$?

$\sin\theta = \frac{\text{opp}_\theta}{\text{hyp}}$

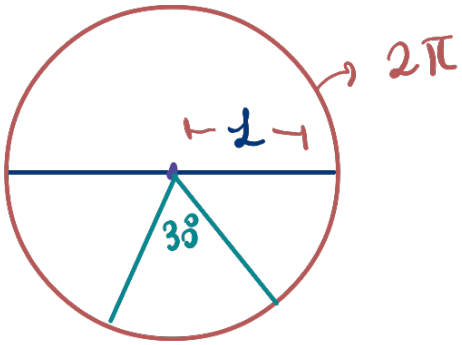
$\cos\theta = \frac{\text{adj}_\theta}{\text{hyp}}$

$\tan\theta = \frac{\text{opp}_\theta}{\text{adj}_\theta}$

$\sin 30° = \frac{PQ}{8} \Rightarrow PQ = 8\sin 30°$

$= 4$

$180° = \pi$ radians



$\frac{180°}{6} = \frac{\pi}{6}$ radians

$30° = \frac{\pi}{6}$ rad