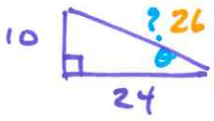
SRT-C6a (not hyp) Practice Assessment Q3 #2 opposite smallest side

1. A right triangle has legs 10 and 24. Find $\cos\theta$, where θ is the smallest angle in the triangle. Give your answer as a reduced fraction.



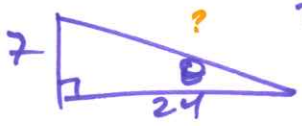
? 26 $\cos\theta = \frac{\text{adj.}}{\text{hyp}} = \frac{24}{?} \to \frac{24}{26}$ reduce $\to \boxed{\frac{12}{13}}$

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

$10^2+24^2=c^2$

$676=c^2 \rightsquigarrow c=26$

2. If $\tan\theta = \frac{7}{24}$, find $\sin\theta$.



$\tan\theta = \frac{7}{24}$ opp / adj.

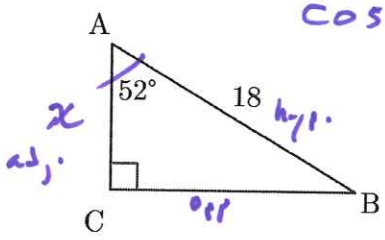
$\sin\theta = \frac{7}{?} \to \boxed{\frac{7}{25}}$

$7^2+24^2=c^2$

$625=c^2$

$25=c$

3. Find the length of AC.

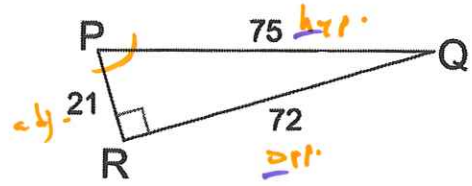


$\cos 52° = \frac{x}{18}$

$18 \cdot \cos 52 = x$

$\boxed{11.082 \approx x}$

4. Find the measure of $\angle P$



Can use any ratio.

$\sin P = 72/75$

$\sin^{-1}(72/75) = P$

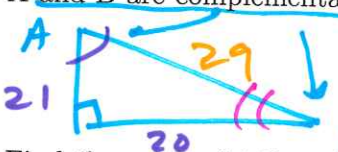
$\boxed{73.7° \approx P}$

SRT-C7a

5. $\sin(27°)$ is equal to the cosine of what angle measure?

If $A+B=90°$, $\sin A = \cos B$ $\to 90-27 = 63$ $\boxed{63°}$

6. A and B are complementary angles. If $\tan A = \frac{20}{21}$, find $\cos B$.



$\tan A = \frac{20}{21}$ opp / adj.

$\cos B = \frac{\text{adj.}}{\text{hyp}} = \frac{20}{?}$

$21^2+20^2=c^2$

$841=c^2$

$29=c$

$\boxed{\frac{20}{29}}$

7. Find the value of θ if $\cos(3\theta+4) = \sin(2\theta+11)$

$3\theta+4+2\theta+11=90° \to 5\theta+15=90$

$5\theta=75 \to \boxed{\theta=15}$

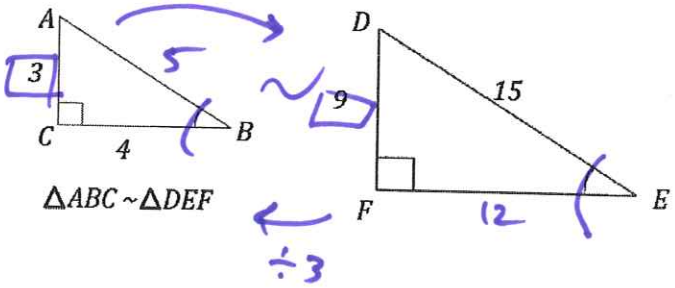
8. Which of the following is equivalent to $\sin E$? Select ALL that apply.

[✓] cos D
[ ] sin D
[ ] tan A
[✓] sin B
[ ] tan E
[✓] cos A
[ ] sin A

$\angle B \cong \angle E$

$\sin B = \cos A$

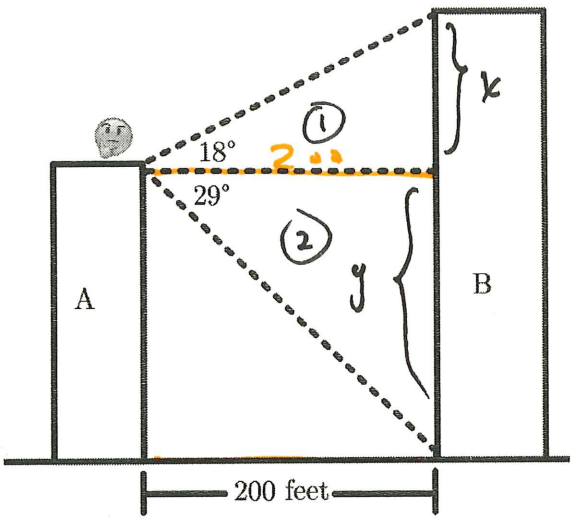
b/c $B+A=90°$

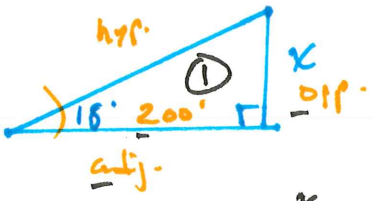


SOHCAHTOA

SRT-C8a

8. A person is at the top of a building and uses a clinometer to measure the angles of elevation and depression to the top and bottom of another, taller building located 200 feet away [see figure below]. How tall, to the nearest foot, is each building?

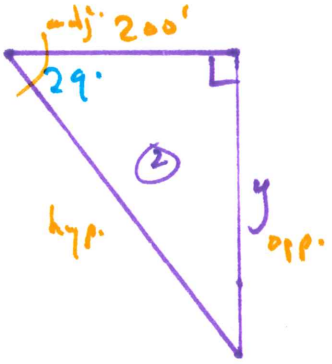




$\tan(18^\circ) = \frac{x}{200}$

$0.32 = \frac{x}{200}$

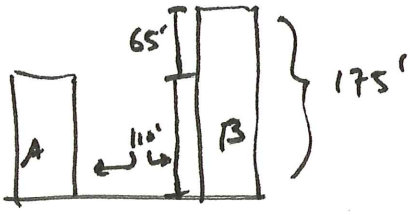
$65 = x$



$\tan(29^\circ) = \frac{y}{200}$

$0.55 = \frac{y}{200}$

$110 = y$

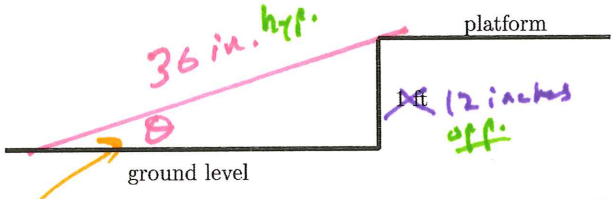


Building A: 110'
Building B: 175'

9. A 36-inch long plywood board is being used as a makeshift ramp to reach an elevated platform that is 1 foot above the ground [see below]. If the angle the board makes with the ground is 20° or greater, it will not be safe to use. Is the ramp safe to use? Show the calculations that lead to your conclusion.

!!!

1 foot = 12 inches



Is this $\geq 20^\circ$?

$\sin\theta = \frac{12}{36}$

$\sin^{-1}\left(\frac{12}{36}\right) = \theta$

$19.47^\circ \approx \theta$

very slightly less than 20°

So, it is safe to use.