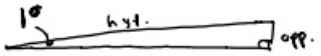
1-23-20

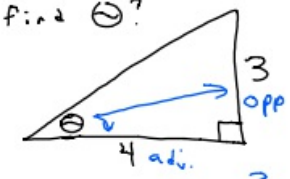
$\sin 1^\circ$



$\sin 1^\circ = \frac{opp}{hyp} = \frac{\text{small \#}}{\text{large \#}} \quad \frac{1}{20}$

.05

Any thoughts on how to find θ?

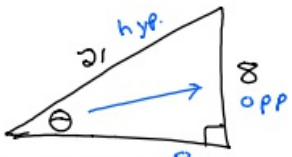


$\tan \theta = \frac{3}{4}$

$\tan \theta = .75$

Plugging in # $\theta \approx 36.9^\circ$

①



~~$\sin^{-1} \sin \theta$~~ $\theta = \sin^{-1} \frac{8}{21}$

$\theta = \sin^{-1}\left(\frac{8}{21}\right)$

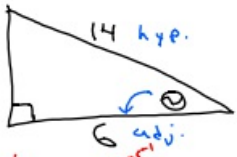
$\theta \approx 22.4^\circ$

②

$\cos^{-1} \cos \theta = \cos^{-1} .456$

$\theta \approx 62.9^\circ$

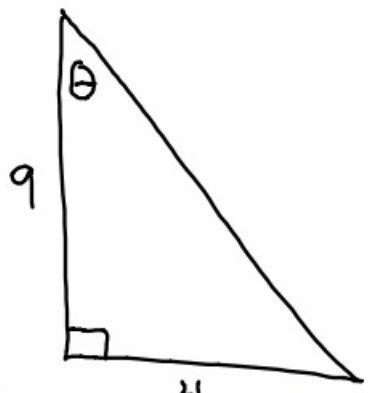
③



$\cos^{-1} \cos \theta = \frac{6}{14}$

$\theta \approx 64.6^\circ$

(4)



$\tan^{-1}$ $\tan\theta = \tan^{-1}\frac{4}{9}$

$\theta \approx 24.0°$

New

$\frac{4}{8} = \frac{1}{2}$

$\sqrt{40}$ Radical

Goes on forever w/out repeating

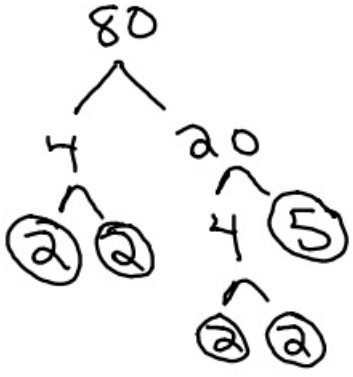
Irrational #s

1, 4, 9, 16, 25, 36, 49, ...

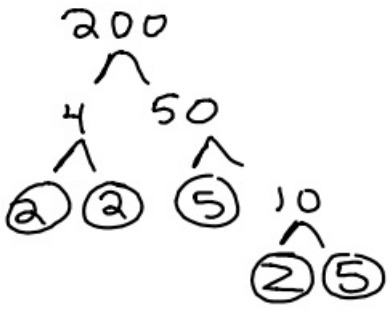
Prime #s

2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, ...

Factor Tree



$80 = 2 \cdot 2 \cdot 2 \cdot 2 \cdot 5$



$2 \cdot 2 \cdot 2 \cdot 5 \cdot 5$

Simplify $\sqrt{200}$

$2 \cdot 5 \sqrt{2 \cdot 2 \cdot 2 \cdot 5 \cdot 5}$

$10\sqrt{2}$

Simplify $\sqrt{40}$

$2\sqrt{2 \cdot 2 \cdot 2 \cdot 5}$

$2\sqrt{10}$

① Simplify $\sqrt{8}$

$\sqrt{2 \cdot 2 \cdot 2}$

$2\sqrt{2}$

② Simplify $\sqrt{18}$

$3\sqrt{2 \cdot 3 \cdot 3}$

$3\sqrt{2}$

$\sqrt{5} \cdot \sqrt{5} = 5$

$\sqrt{n} \cdot \sqrt{n} = n$

③ Simplify $2\sqrt{3} \cdot \sqrt{3}$

$2 \cdot 3$

$= 6$

④ Simplify $2\sqrt{3} \cdot 3\sqrt{5}$

$6\sqrt{15}$

⑤ Simplify $3\sqrt{5}\,2\sqrt{5}$

$3 \cdot 2 \cdot 5$

30

⑥ Simplify $2\sqrt{2} \cdot 3\sqrt{5} \cdot 2\sqrt{2}$ 2

$2 \cdot 3 \cdot \sqrt{5} \cdot 2 \cdot 2$

$24\sqrt{5}$

⑦ Simplify $3\sqrt{3} \cdot 2\sqrt{5} \cdot 2\sqrt{3}$ 3

$3 \cdot 2 \cdot \sqrt{5} \cdot 2 \cdot 3$

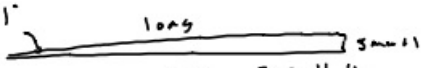
$36\sqrt{5}$

⑧ Simplify $2\sqrt{3} \cdot 10\sqrt{10}$

$20\sqrt{30}$

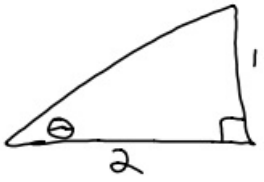
1-23-20 7th Geo

$\sin 1^\circ$



$\sin 1^\circ = \frac{opp}{hyp} = \frac{small\ \#}{large\ \#} = small\ decimal$

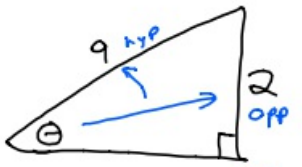
How might you use calculator and find θ below?



$\tan\theta = \frac{1}{2}$

$\tan\theta = .5$

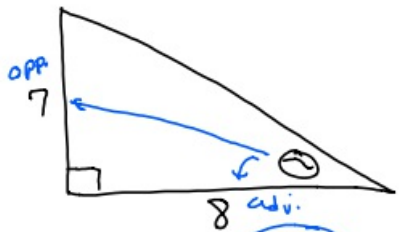
① Find θ



~~$\sin^{-1}\ \sin$~~ $\theta = \sin^{-1}\frac{2}{9}$

$\theta \approx 12.8^\circ$

②

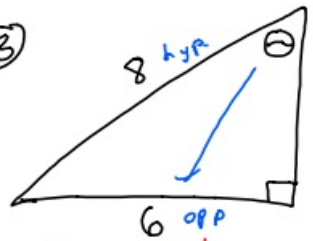


SOH CAH TOA

$\tan^{-1}\ \tan\theta = \frac{7}{8}$

$\theta \approx 41.2^\circ$

③



$\sin\theta = \frac{6}{8}$ ~~$\sin^{-1}$~~

$\theta = \sin^{-1}\frac{6}{8}$

$\theta \approx 48.6°$

We like to simplify $\frac{4}{8}$, correct?

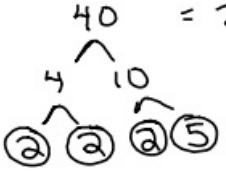
Simplify radicals.

$\sqrt{40} \rightarrow 2\sqrt{10}$

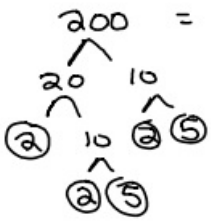
Prime numbers: 2, 3, 5, 7, 11, 13, 17, 19, ...

Factor Tree

$40 = 2 \cdot 2 \cdot 2 \cdot 5$



$200 = 2 \cdot 2 \cdot 2 \cdot 5 \cdot 5$



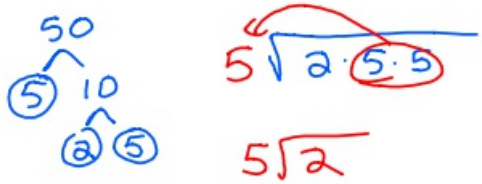
Simplify $\sqrt{200}$

$= \sqrt{2 \cdot 2 \cdot 2 \cdot 5 \cdot 5}$

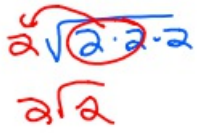
$2 \cdot 5\sqrt{2}$

$10\sqrt{2}$

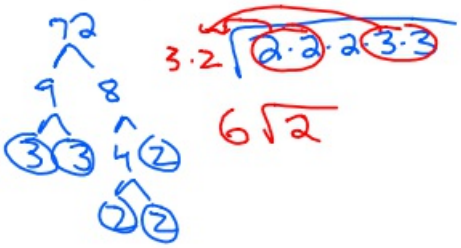
① Simplify $\sqrt{50}$



② Simplify $\sqrt{8}$



③ Simplify $\sqrt{72}$



$\sqrt{2}$ ← goes on forever
does not repeat
Irrational #

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④ Simplify $2\sqrt{3}\sqrt{3}$

$2\cdot 3$

6

$\sqrt{n}\cdot\sqrt{n} = n$

⑤ Simplify $4\sqrt{2}\cdot 3\sqrt{5}$

$12\sqrt{10}$

⑥ Simplify $3\sqrt{2}\cdot 5\sqrt{2}$

$3\sqrt{2}\ 5\sqrt{2}\ 2$

30

$15\sqrt{4}$

$15\cdot 2$

30

(7) Simplify $3\sqrt{2} \cdot 5\sqrt{3} \cdot 2\sqrt{2}$ 2

$60\sqrt{3}$

(8) Simplify $2\sqrt{7} \cdot 3\sqrt{7}$ 7

42