

Proposed Format Change for the course: A more finely-honed homework assignment and Fewer Tests.

Homework: 20%

Quizzes: 40%

Midterm: 20%

Final: 20%

Homework: I will build a worksheet that contains a handful of questions that hit the main concepts. I'll collect it on Mondays.

Quiz: Once a week (typically Friday), I will give a 20-minute *closed*-book quiz, based on the homework(s).

Quizzes will be built from homework assignments (very similar problems, in other words).

Midterm and Final will be built from Quizzes (very similar problems, in other words).

I think this will streamline preparations for a lot of students.

Procedure:

- Go to Course Website.
- Click on Homework Tab.
- Download and print the week's homework.
- Turn in the homework when it is due.

Do your work on scratch paper, and *then* do a careful job transferring it to the homework sheet.

This first quiz will combine homework and quiz into one assignment, due this coming Wednesday.

I think this will focus your work, more, and avoid the busy-work nonsense, and prepare you better, with less stress.

Still, a good student learning this material for the 1st time, will end up doing far *more* problems than are assigned, but only as many as needed to master the concepts.

① *Degenerate*

$0^\circ = 0$

$\sin 0 = \frac{0}{1} = 0$

$\cos 0 = \frac{1}{1} = 1$

②

$30^\circ = \frac{\pi}{6}$

$\sin \frac{\pi}{6} = \frac{1}{2}$

$\cos \frac{\pi}{6} = \frac{\sqrt{3}}{2}$

③

$45^\circ = \frac{\pi}{4}$

$\sin \frac{\pi}{4} = \frac{1}{\sqrt{2}}$

$\cos \frac{\pi}{4} = \frac{1}{\sqrt{2}}$

④ *Special*

$\sin \theta = \frac{4}{5}$

$\cos \theta = \frac{3}{5}$

$3^2 + y^2 = 5^2$

$9 + y^2 = 25$

$y^2 = 16$

$y = \pm 4$



⑤

$60^\circ = \frac{\pi}{3}$

$\sin \frac{\pi}{3} = \frac{\sqrt{3}}{2}$

$\cos \frac{\pi}{3} = \frac{1}{2}$

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5416.102371
sin(pi/2) 1
sin^-1(4/5) 0.927295218
Ans*180/pi
53.13010235
    
```

→ 3-4-5 triangle's angle is about 53°

⑥ *Degenerate*

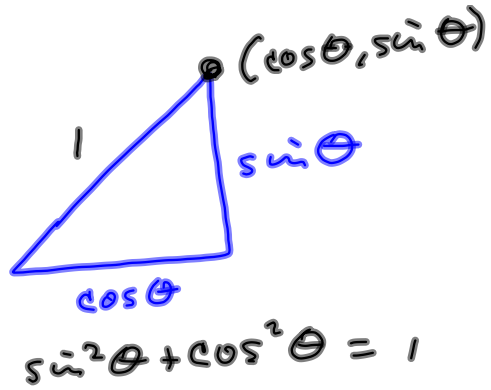
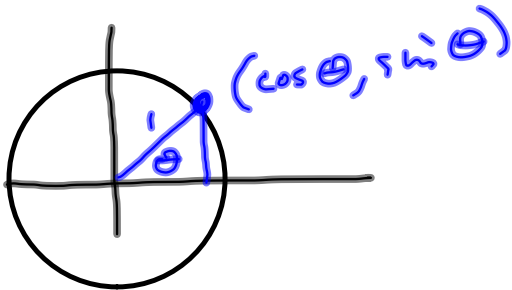
$90^\circ = \frac{\pi}{2}$

$\sin \frac{\pi}{2} = 1$

$\cos \frac{\pi}{2} = 0$

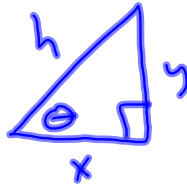
radians
 (radians) $\left(\frac{180^\circ}{1 \text{ radian}}\right) = \text{deg}$

$$\sin^2 \theta + \cos^2 \theta = 1$$



$$2(b+c) = 2b+2c$$

$$(bc)^2 = b^2 c^2$$



$$\frac{y}{x} = \tan \theta$$

$$\sin \theta = \frac{y}{h}$$

$$\cos \theta = \frac{x}{h}$$

$$\frac{\sin \theta}{\cos \theta} = \frac{\frac{y}{h}}{\frac{x}{h}} = \frac{y}{h} \cdot \frac{h}{x} = \frac{y}{x} = \tan \theta$$

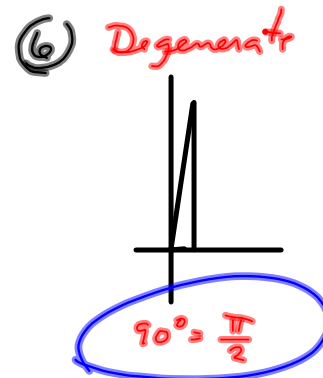
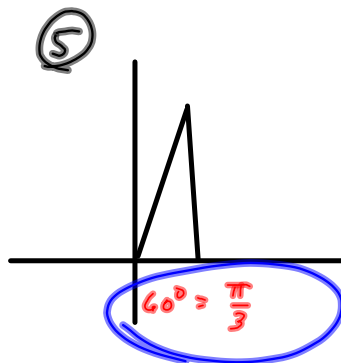
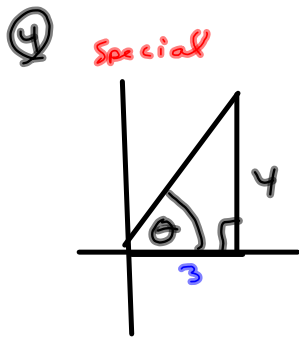
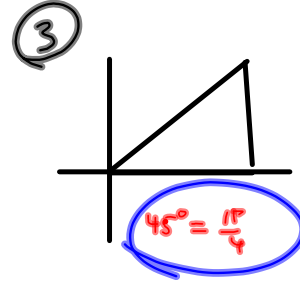
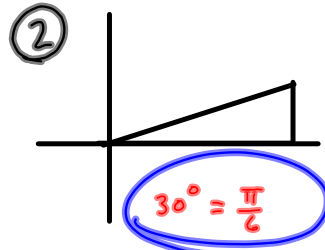
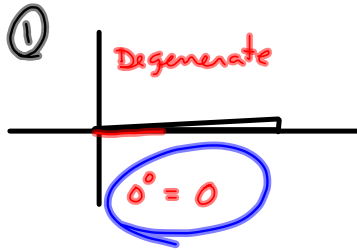
$$1 + \tan^2 \theta = \sec^2 \theta$$

$$= 1 + \left(\frac{\sin \theta}{\cos \theta} \right)^2$$

$$= 1 + \frac{\sin^2 \theta}{\cos^2 \theta}$$

$$= \frac{1}{1} \cdot \frac{\cos^2 \theta}{\cos^2 \theta} + \frac{\sin^2 \theta}{\cos^2 \theta}$$

$$= \frac{\cos^2 \theta + \sin^2 \theta}{\cos^2 \theta} = \frac{1^2}{\cos^2 \theta} = \left(\frac{1}{\cos \theta} \right)^2 = \sec^2 \theta$$



$$3^2 + y^2 = 5^2$$

$$9 + y^2 = 25$$

$$y^2 = 16$$

$$y = \pm 4$$

```

5416.102371
sin(pi/2)
1
sin^-1(4/5)
0.27295218
Ans: 1.107148717764
53.1301023549
    
```

radians $\left(\frac{180^\circ}{1 \text{ radian}}\right) = \text{degrees}$

→ 3-4-5 triangle's angle is about 53°

$$\sin^2 \theta + \cos^2 \theta = 1$$

