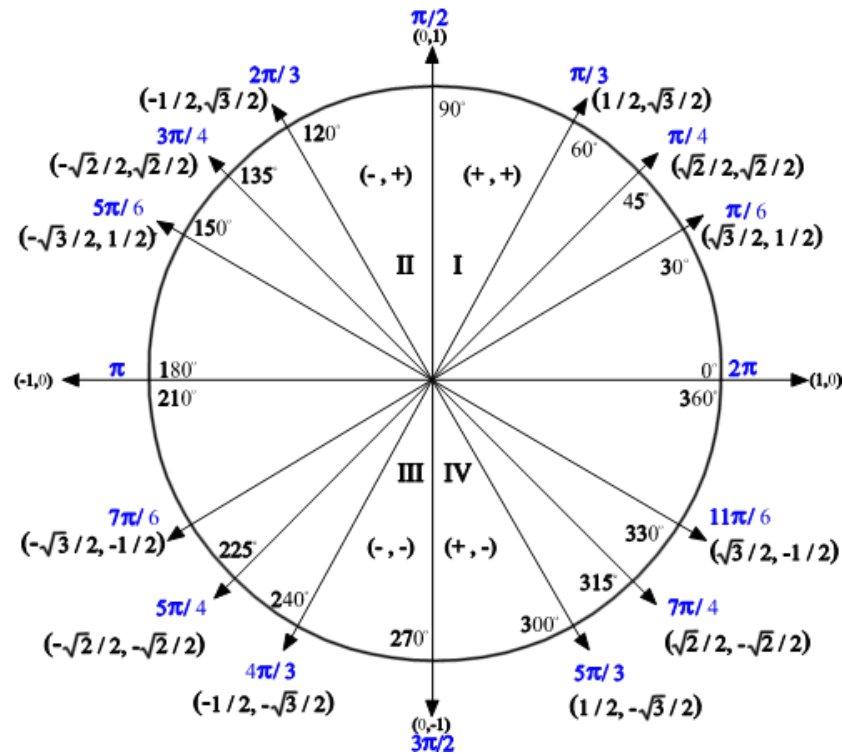


# Welcome to ... Trigonometry and 3-Space 122



## Classroom Rules/School Rules

- Expectations
- Bookbags/Hats/Coats
- Cell Phones/Ipods
- Code of Conduct
- Exemptions
- Must be respectful of all others in classroom. Someone is speaking or intercom is in use means EVERYONE else is listening.
- Fire Exit/Lockdown
- Study Block
- Attendance



It is now time to wake up those brains after a long summer break...

### Review:

- Simplifying Radicals
- Pythagoras Theorem
- Basic Trigonometric Properties

## Introductory Review

# Working With Radicals

**Simplify**

$$\begin{aligned} &\sqrt{12} \\ &\swarrow \sqrt{4 \cdot 3} \\ &2\sqrt{3} \end{aligned}$$

$$\begin{aligned} &5\sqrt{27} \\ &\swarrow 5\sqrt{9 \cdot 3} \\ &15\sqrt{3} \end{aligned}$$

$$\begin{aligned} &5\sqrt{8} + 4\sqrt{18} \\ &\swarrow \swarrow 5\sqrt{4 \cdot 2} + 4\sqrt{9 \cdot 2} \\ &10\sqrt{2} + 12\sqrt{2} \end{aligned}$$

$$\boxed{22\sqrt{2}}$$

## Rationalizing the denominator

↳ get rid of the radical from the bottom

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

$$\frac{5\sqrt{2}}{2}$$

$$\frac{8\sqrt{2}}{6\sqrt{8}} \cdot \frac{\sqrt{8}}{\sqrt{8}}$$

$$\frac{8\sqrt{16}}{6(8)} \Rightarrow \frac{32}{48} \Rightarrow \boxed{\frac{2}{3}}$$

## Think Conjugates!

$$\frac{(8 - \sqrt{2})(2 + \sqrt{5})}{(2 - \sqrt{5})(2 + \sqrt{5})}$$

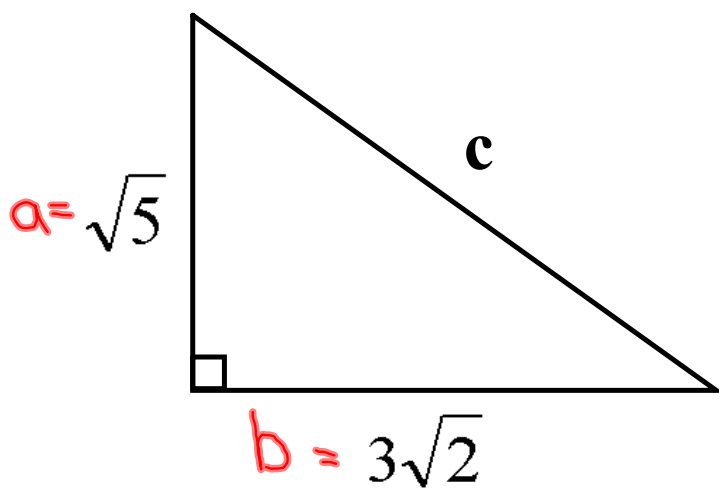
$$\frac{16 + 8\sqrt{5} - 2\sqrt{2} - \sqrt{10}}{4 + \cancel{2\sqrt{5}} - \cancel{2\sqrt{5}} - 5}$$

$$\Rightarrow \frac{16 + 8\sqrt{5} - 2\sqrt{2} - \sqrt{10}}{-1}$$

$$\Rightarrow \boxed{-16 - 8\sqrt{5} + 2\sqrt{2} + \sqrt{10}}$$

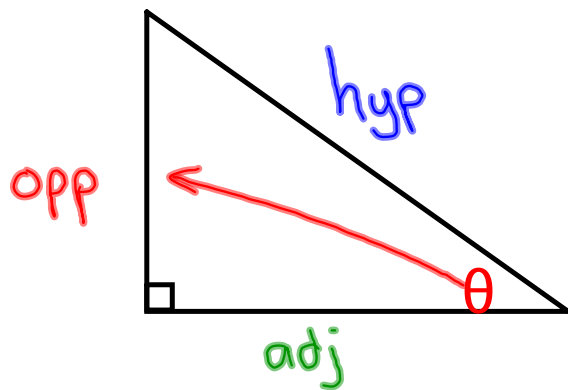
# Think Pythagorean Theorem!

Determine the length of the indicated side!



$$\begin{aligned}a^2 + b^2 &= c^2 \\(\sqrt{5})^2 + (3\sqrt{2})^2 &= c^2 \\5 + 9(2) &= c^2 \\5 + 18 &= c^2 \\23 &= c^2 \\ \boxed{\sqrt{23} = c}\end{aligned}$$

# Trig Ratios



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

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

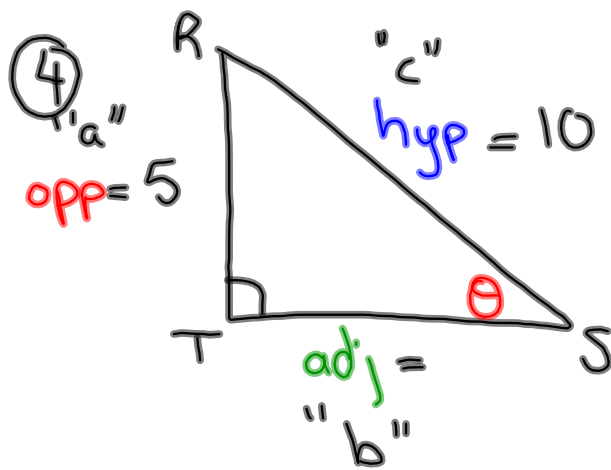
$$\tan \theta = \frac{\text{opp}}{\text{adj}}$$

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

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

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

# Homework



$$\begin{aligned} a^2 + b^2 &= c^2 \\ (5)^2 + b^2 &= (10)^2 \\ 25 + b^2 &= 100 \\ b^2 &= 75 \\ b &= \sqrt{75} \\ b &= \sqrt{25 \cdot 3} \\ b &= 5\sqrt{3} \end{aligned}$$

## Attachments

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Trig&3SpaceCourseOutline.doc