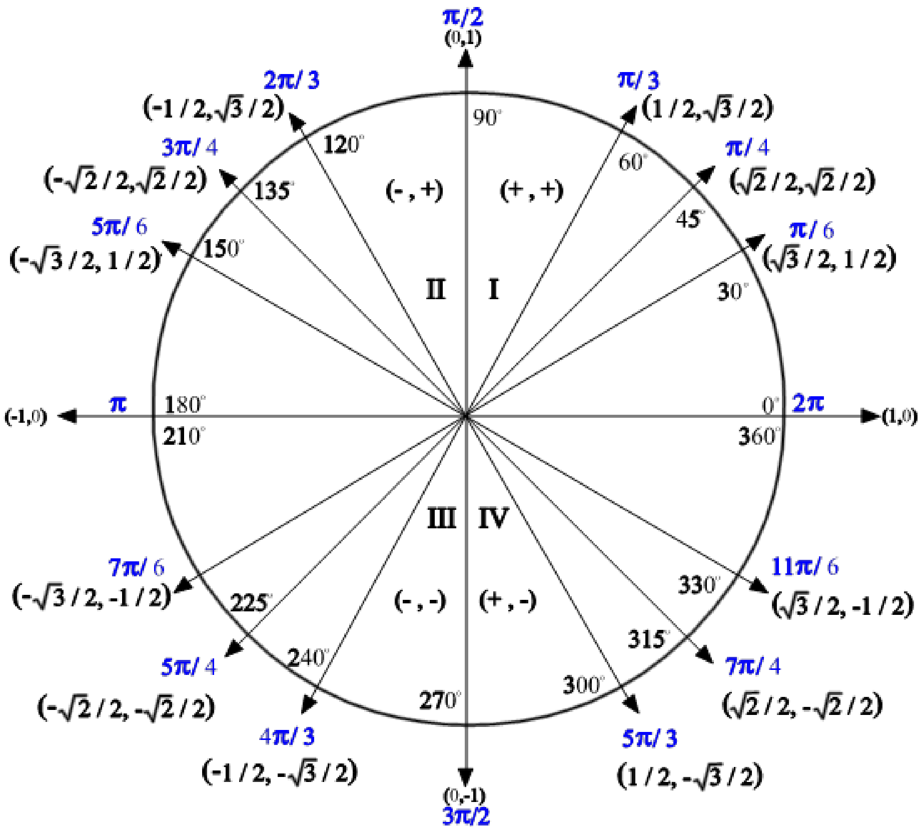

π/2
(0,1)
2π/3
(-1/2, √3/2)
120°
90°
π/3
(1/2, √3/2)
60°
3π/4
(-√2/2, √2/2)
135°
π/4
(√2/2, √2/2)
45°
5π/6
(-√3/2, 1/2)
150°
π/6
(√3/2, 1/2)
30°
(-, +)
(+, +)
II
I
(-1,0)
π
180°
210°
0°
2π
360°
(1,0)
III
IV
(-, -)
(+, -)
7π/6
(-√3/2, -1/2)
225°
11π/6
(√3/2, -1/2)
330°
5π/4
(-√2/2, -√2/2)
240°
7π/4
(√2/2, -√2/2)
315°
4π/3
(-1/2, -√3/2)
270°
300°
5π/3
(1/2, -√3/2)
(0,-1)
3π/2

Let's Review:

- Simplifying Radicals
- Pythagoras Theorem
- Basic Trigonometric Properties

Radical Review

Simplify

$\sqrt{12}$

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

$\boxed{2\sqrt{3}}$

$5\sqrt{27}$

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

$\boxed{15\sqrt{3}}$

$5\sqrt{8}+4\sqrt{18}$

$5\sqrt{\underline{2\cdot 2}\cdot 2}+4\sqrt{\underline{3\cdot 3}\cdot 2}$

$10\sqrt{2}+12\sqrt{2}$

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

Rationalizing the Denominator

Get rid of radical bottom

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

$$\frac{5\sqrt{2}}{\sqrt{4}}$$

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

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

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

$$\frac{8\cancel{\sqrt{2}}}{12\cancel{\sqrt{2}}} \rightarrow \frac{8}{12} \rightarrow \boxed{\frac{2}{3}}$$

Think Conjugates!

$(a+b) \rightarrow (a-b)$

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

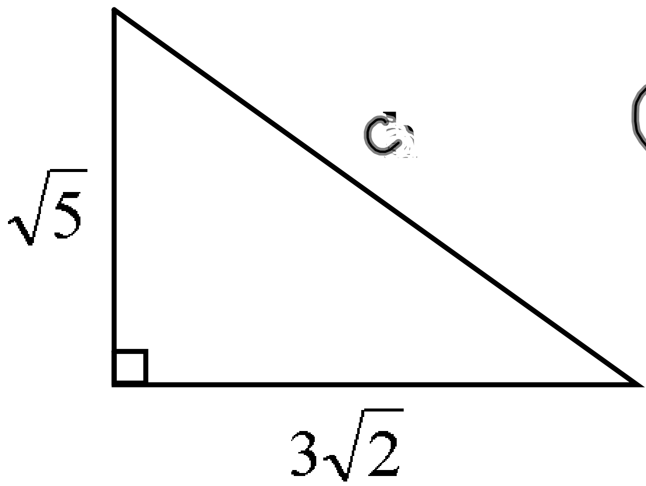
$$\frac{16+8\sqrt{5}-2\sqrt{2}-\sqrt{10}}{4+\cancel{2\sqrt{5}}\cancel{-2\sqrt{5}}-\sqrt{25}}$$

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

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

Think Pythagorean Theorem!

Determine the length of the idicated side!



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

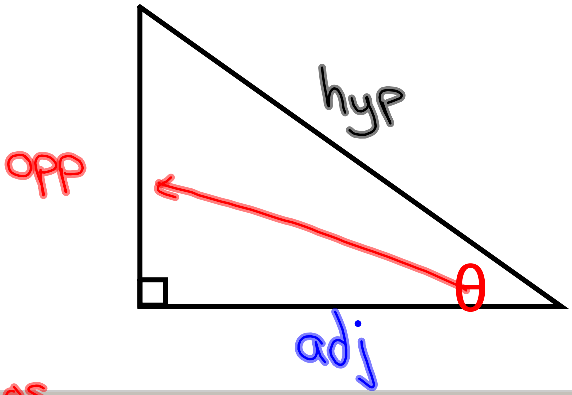
$(\sqrt{5})^2+(3\sqrt{2})^2=c^2$

$5+18=c^2$

$23=c^2$

$\sqrt{23}=c$

Trigonometric Ratios



Primary Ratios

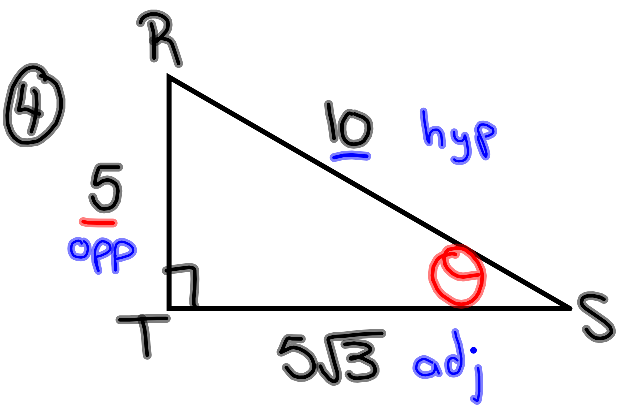
$\sin\theta = \frac{opp}{hyp}$ $\cos\theta = \frac{adj}{hyp}$ $\tan\theta = \frac{opp}{adj}$

Reciprocal Ratios

$\csc\theta = \frac{hyp}{opp}$ $\sec\theta = \frac{hyp}{adj}$ $\cot\theta = \frac{adj}{opp}$

cosecant secant cotangent

Homework



1. Find missing side

$$a^2+b^2=c^2$$
$$(5)^2+b^2=(10)^2$$
$$25+b^2=100$$
$$b^2=100-25$$
$$b^2=75$$
$$b=\sqrt{75}$$
$$b=\sqrt{5\cdot5\cdot3}$$
$$\boxed{b=5\sqrt{3}}$$

$$\sin\theta=\frac{5}{10}=\frac{1}{2}$$

$$\cos\theta=\frac{5\sqrt{3}}{10}=\frac{1\sqrt{3}}{2}$$

$$\tan\theta=\frac{5}{5\sqrt{3}}=\frac{1}{\sqrt{3}}\cdot\frac{\sqrt{3}}{\sqrt{3}}=\frac{\sqrt{3}}{3}$$

$$\csc\theta=\frac{10}{5}=2$$

$$\sec\theta=\frac{2}{\sqrt{3}}\cdot\frac{\sqrt{3}}{\sqrt{3}}=\frac{2\sqrt{3}}{3}$$

$$\cot\theta=\sqrt{3}$$

③ $\log_6(x-1)+\log_6(x+4)=2$

$\log_6[(x-1)(x+4)]=2$

$\log_6(x^2+3x-4)=2$ Logarithmic

Base ans exp

$6^2=x^2+3x-4$ Exponential

$36=x^2+3x-4$

$0=x^2+3x-40$ ← Factor $8\times -5=-40$ $8+-5=3$

$0=(x+8)(x-5)$

$x+8=0$	$x-5=0$
$x=-8$	$x=5$ is a solution

④ $\log_r x=-2$, $\log_r y=5$, $\log_r z=4$

a) $\log_r\left(\frac{x^3z^2}{r(y)^{1/5}}\right)$

$\log_r x^3+\log_r z^2-\log_r r-\log_r y^{1/5}$

$3\log_r x+2\log_r z-\log_r r-\frac{1}{5}\log_r y$

$3(-2)+2(4)-1-\frac{1}{5}(5)$

$-6+8-1-1$

0

b) $5\log_2 x-\frac{3}{4}[4\log_2 x^3-12\log_2 x^2]$

$5\log_2 x-3\log_2(x^3)+9\log_2(x^2)$

$\log_2 x^5-\log_2 x^9+\log_2 x^{18}$

$\log_2\left(\frac{x^5\cdot x^{18}}{x^9}\right)$

$\log_2 x^{5+18-9}$

$\boxed{\log_2 x^{14}}$

① $-2y+2=8(2)^{3x+6}+8$

$$\frac{-2y}{-2}=\frac{8}{-2}(2)^{3x+6}+\frac{6}{-2}$$

$y=-4(2)^{3x+6}-3$ ← Factor

$y=-4(2)^{3(x+2)}-3$

Attachments

Trig&3SpaceCourseOutline.doc