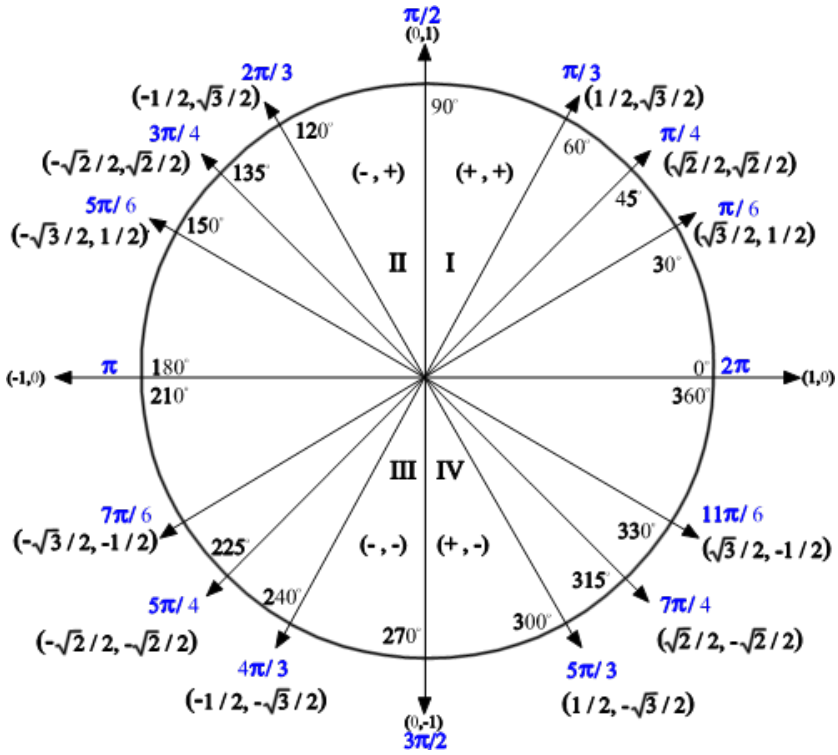

π/2
(0,1)
2π/3
(-1/2,√3/2)
π/3
(1/2,√3/2)
90°
120°
60°
3π/4
(-√2/2,√2/2)
π/4
(√2/2,√2/2)
135°
45°
(-,+)
(+,+)
5π/6
(-√3/2,1/2)
π/6
(√3/2,1/2)
150°
30°
II
I
π
180°
0°
2π
(-1,0)
(1,0)
210°
360°
III
IV
7π/6
(-√3/2,-1/2)
11π/6
(√3/2,-1/2)
225°
330°
(-,-)
(+,-)
315
5π/4
(-√2/2,-√2/2)
7π/4
(√2/2,-√2/2)
240°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

Let's Review:

- Simplifying Radicals
- Pythagoras Theorem
- Basic Trigonometric Properties

Radical Review

Simplify

$\sqrt{12}$

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

$2\sqrt{3}$

$5\sqrt{27}$

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

$15\sqrt{3}$

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

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

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

$22\sqrt{2}$

Radicals

① $5\sqrt{3} + \sqrt{3} = 6\sqrt{3}$

② $5\sqrt{3} + \sqrt{2}$ Does not simplify

③ $10\sqrt{2} - 8\sqrt{2} = 2\sqrt{2}$

④ $2\sqrt{3} \cdot 5\sqrt{2} = 10\sqrt{6}$

⑤ $\sqrt{3} \cdot 5 = 5\sqrt{3}$

⑥ $2\sqrt{3} \cdot 5\sqrt{3} = 10\sqrt{9} = 10(3) = 30$

⑦ $2\sqrt{3} \cdot 4\sqrt{12} = 8\sqrt{36} = 8(6) = 48$

Rationalizing the Denominator

(Get rid of the radical)

$$\frac{5}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{5\sqrt{2}}{\sqrt{4}} = \boxed{\frac{5\sqrt{2}}{2}}$$

↑ one term

$$\frac{8\sqrt{2}}{6\sqrt{8}} \cdot \frac{\sqrt{8}}{\sqrt{8}} = \frac{8\sqrt{16}}{6\sqrt{64}} = \frac{8(4)}{6(8)} = \frac{32}{48} = \boxed{\frac{2}{3}}$$

↑ one term

Think Conjugates!

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

↑ two terms

Conjugate

$1+\sqrt{5} \rightarrow 1-\sqrt{5}$

$1-\sqrt{5} \rightarrow 1+\sqrt{5}$

$-1+\sqrt{3} \rightarrow -1-\sqrt{3}$

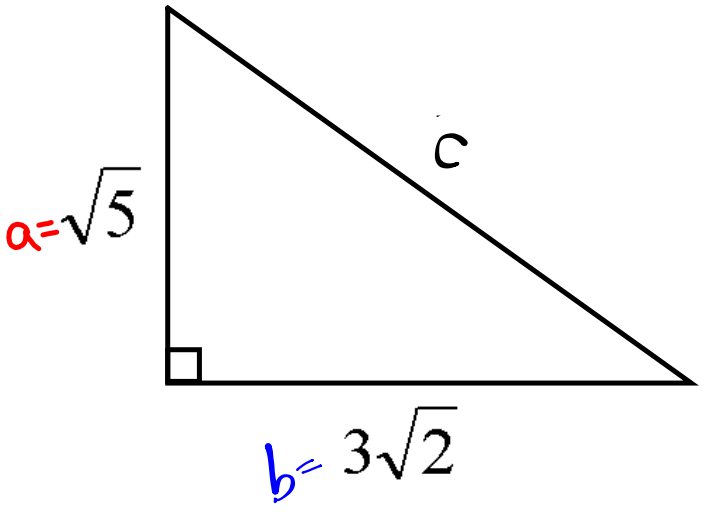
$$\frac{16+8\sqrt{5}-2\sqrt{2}-\sqrt{10}}{4+2\sqrt{5}-2\sqrt{5}-5}$$

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

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

Think Pythagorean Theorem!

Determine the length of the idicated side!



$(\sqrt{5})(\sqrt{5}) = \sqrt{25} = 5$

$(3\sqrt{2})(3\sqrt{2}) = 9\sqrt{4} = 9(2) = 18$

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

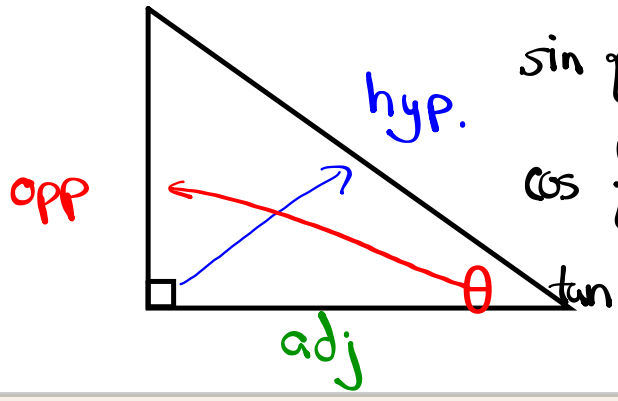
$(\sqrt{5})^2 + (3\sqrt{2})^2 = c^2$

$5 + 18 = c^2$

$23 = c^2$

$\sqrt{23} = c$

Trigonometric Ratios



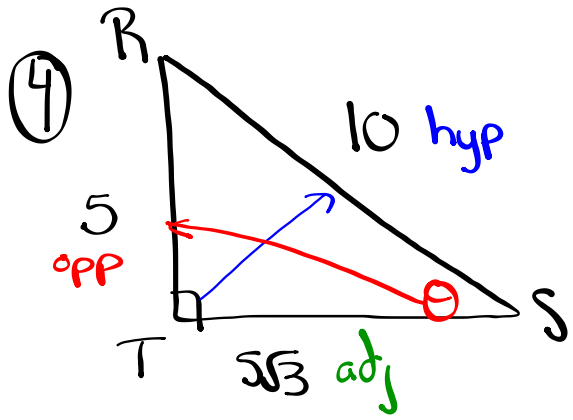
$$\sin\theta = \frac{opp}{hyp} \qquad \cos\theta = \frac{adj}{hyp} \qquad \tan\theta = \frac{opp}{adj}$$

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

cosecant secant cotangent

Homework

9



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

$(5)^2 + b^2 = (10)^2$

$25 + b^2 = 100$

$b^2 = 75$

$b = \sqrt{75}$

$b = \sqrt{5 \cdot 5 \cdot 3}$

$b = 5\sqrt{3}$

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

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

Attachments

Trig&3SpaceCourseOutline.doc