

MATH 122

RIGHT TRIANGLE STUFF

In each of the following, c is the hypotenuse, γ the right angle, a the leg opposite angle α , and b the leg opposite angle β .

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| 1. $\alpha = 45^\circ$, $c = 4$ | Find a , b , $\tan \beta$ |
| 2. $\beta = 60^\circ$, $a = 3$ | Find b , c , $\sin \beta$, $\sec \alpha$ |
| 3. $a = 5$, $b = 6$ | Find c , $\sin \alpha$, $\tan \beta$ |
| 4. $a = x$, $b = 1$ | Find c , $\sin \alpha$, $\tan \beta$ |
| 5. $a = 2$, $c = 2\sqrt{3}$ | Find b , $\cos \alpha$, $\tan \alpha$ |
| 6. $c = x$, $a = 1$ | Find b , $\sin \alpha$, $\sin \beta$, $\tan \beta$ |
| 7. $b = y$, $c = 2$ | Find a , $\sin \alpha$, $\cos \alpha$, $\tan \beta$ |
| 8. $\alpha = 30^\circ$, $a = x$ | Find b , c , $\tan \beta$ |

ANSWERS:

1. $a = b = 2\sqrt{2}$ $\tan \beta = 1$	2. $b = 3\sqrt{3}$ $c = 6$ $\sin \beta = \frac{\sqrt{3}}{2}$ $\sec \alpha = \frac{2\sqrt{3}}{3}$	3. $c = \sqrt{61}$ $\sin \alpha = \frac{5\sqrt{61}}{61}$ $\tan \beta = 6/5$	4. $c = \sqrt{x^2 + 1}$ $\sin \alpha = \frac{x}{\sqrt{x^2 + 1}}$ $\tan \beta = 1/x$
5. $b = 2\sqrt{2}$ $\cos \alpha = \frac{\sqrt{6}}{3}$ $\tan \alpha = \frac{\sqrt{2}}{2}$	6. $b = \sqrt{x^2 - 1}$ $\sin \alpha = 1/x$ $\sin \beta = \frac{\sqrt{x^2 - 1}}{x}$ $\tan \beta = \frac{x}{\sqrt{x^2 - 1}}$	7. $a = \sqrt{4 - y^2}$ $\sin \alpha = \frac{\sqrt{4 - y^2}}{2}$ $\cos \alpha = y/2$ $\tan \beta = \frac{y}{\sqrt{4 - y^2}}$	8. $b = x\sqrt{3}$ $c = 2x$ $\tan \beta = \sqrt{3}$