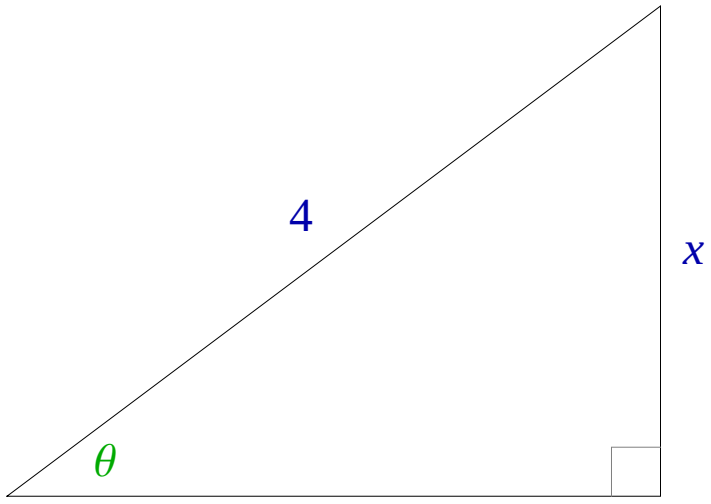
Wednesday, January 30

Clicker Questions

Clicker Question 1

Some more trigonometry

Which pair of equations is true?



A. $x = 4\sin\theta$ and $\cos\theta = \sqrt{16 - x^2}/4$

B. $x = 4\cos\theta$ and $\sin\theta = \sqrt{16 - x^2}/x$

C. $x = 4\sin\theta$ and $\cos\theta = \sqrt{16 - x^2}/x$

D. $x = 4\cos\theta$ and $\sin\theta = \sqrt{16 - x^2}/4$

E. none of the above

Clicker Question 2

The third type of trigonometric substitution

What is a useful substitution for integrals involving $\sqrt{x^2 + a^2}$?

A. $x = a\cos\theta$, since then $\sqrt{x^2 + a^2} = a\sin\theta$

B. $x = a\csc\theta$, since then $\sqrt{x^2 + a^2} = a\cot\theta$

C. $x = a\tan\theta$, since then $\sqrt{x^2 + a^2} = a\sec\theta$

D. $x = a\sec\theta$, since then $\sqrt{x^2 + a^2} = a\tan\theta$

E. $x = a\sin\theta$, since then $\sqrt{x^2 + a^2} = a\cos\theta$

Using:

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