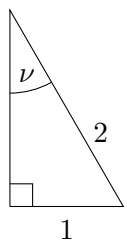**Algebra & Functions** (Maths 201–016)

In the following problems, please give exact simplified values (no decimals).

(2)   1. Find $\sin\nu$, $\cos\nu$, $\tan\nu$, and ν in the following triangle:

$\sin\nu =$

$\tan\nu =$

$\cos\nu =$

$\nu =$

2. If $\csc\theta = \frac{13}{5}$, find all the other five trig function values: $\sin\theta, \cos\theta, \tan\theta, \sec\theta, \cot\theta$.

3. What is the (exact) value of $\tan(45°) - \csc(30°)$?

4. Solve: $4^{2-x} = 8^{x-2}$

5. Solve: $3^{2-x} = 27^{x-2}$

6. Evaluate: $\ln(e^7) - \log_5(25) + \log_3(\frac{1}{9})$

Answers

1. $\sin\nu = \frac{1}{2};\ \ \tan\nu = \frac{1}{\sqrt{3}};\ \ \cos\nu = \frac{\sqrt{3}}{2};\ \ \nu = 30°$

2. $\sin\theta = \frac{5}{13};\ \ \cos\theta = \frac{12}{13};\ \ \tan\theta = \frac{5}{12};\ \ \sec\theta = \frac{13}{12};\ \ \cot\theta = \frac{12}{5}$

3. $1 - 2 = -1$ 4. $x = 2$ 5. $x = 2$

6. $7 - 2 + (-2) = 3$