

Cameron took 4 tests, and his scores were as follows: 100, 60, 80, and 30. Cameron took another test that was scored x . The mean score of the 5 tests he took is 72. What is the value of x ?

Average

$$\begin{aligned} \text{Average} &= \frac{100 + 60 + 80 + 30 + x}{5} \\ 5(72) &= \frac{270 + x}{5} \times 5 \\ 360 &= 270 + x \\ -270 &\quad -270 \\ \hline 90 &= x \end{aligned}$$

Short cut

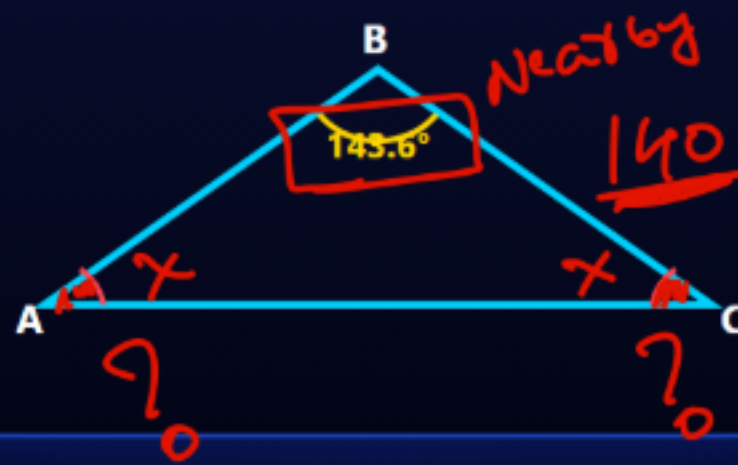
$$\begin{aligned} 5 \times 72 &= 360 \\ 100 + 60 + 80 + 30 &= 270 \\ \hline 90 & \end{aligned}$$

Question 2

42

In $\triangle ABC$, $\angle A$ and $\angle C$ are congruent, and the measure of $\angle B$ is 143.6° . What is the measure of $\angle A$?

Estimation



$$\begin{array}{r} 180 \\ 143.6 + x + x = 180 \\ -143.6 \quad -143.6 \\ \hline \end{array}$$

$$2x = 36.4$$

$$x = 18.2$$

Question 3

Which of the following expressions is equivalent to $x^2 - x - 30$?

A: $(x + 3)(x - 10)$

B: $(x + 6)(x - 5)$

C: $(x - 6)(x + 5)$

D: $(x - 15)(x - 15)$

Question 4

Which of the following matrices is equal to $5 \cdot \begin{bmatrix} -4 & 2 \\ 0 & -5 \end{bmatrix}$?

$$\begin{bmatrix} -20 & 10 \\ 0 & -25 \end{bmatrix}$$

If $6y = 5x - 1$, then $x = ?$

$$\begin{array}{rcl} 6y & = & 5x - 1 \\ +1 & & +1 \\ \hline 6y + 1 & = & 5x \\ \div 5 & & \div 5 \\ \hline \frac{6y + 1}{5} & = & x \end{array}$$

~~$P \in \mathbb{N} \setminus \mathbb{S}$~~

Question 6

A boat is traveling at a speed of 30 miles per hour. What is the boat's speed in feet per second?
(Note: 1 mile = 5,280 feet)

$$\text{Speed} = \frac{\text{Dist}}{\text{Time}}$$

$$\frac{30 \text{ miles}}{\text{hour}} = \frac{30 \times 5280}{60 \times 60 \text{ sec}}$$

$$\frac{(3 \times 528)}{(6 \times 6)}$$

$$3 \times [528/6] \times 6$$

$$\frac{3 + 528}{6 \times 6}$$

$$3 + \underline{528/6} \times 6$$

Question 7

For an angle with measure α in a right triangle, $\sin \alpha = 5/13$ and $\tan \alpha = 5/12$. What is the value of $\cos \alpha$?

$$\tan \theta = \frac{\sin \theta}{\cos \theta}$$

$$\frac{5}{12} = \frac{5/13}{\cos \theta}$$

$$\cos \theta = \frac{5/13}{5/12} = \frac{5}{13} \cdot \frac{12}{5} = \frac{12}{13}$$

Ti-84

Alpha R.T.D.n

$$\frac{5/13}{5/12} =$$

Question 8

Which of the following values, if any, is the y-value of the solution set to the system of equations below?

$$\begin{array}{rcl} \begin{array}{l} \swarrow \quad \nwarrow \\ 2x - y = 7 \\ \swarrow \quad \nwarrow \\ -4x + 2y = 2 \end{array} & = & \begin{array}{r} \cancel{8x} - \cancel{4y} = 28 \\ \cancel{-8x} + \cancel{4y} = 4 \\ \hline 0 \quad 0 = 32 \\ \text{oops} \dots \end{array} \end{array}$$