20. If $\sin\theta = \frac{2}{5}$, find $\cos\theta$.

    f. $\frac{5}{21}$

    g. $\sqrt{\frac{21}{5}}$

    h. $\frac{5}{3}$

    i. $\frac{3}{5}$

    j. $\sqrt{\frac{5}{21}}$

76. Find the value of $\sin A$ if angle A is acute and $\cos A = \frac{9}{10}$.

f. $\frac{\sqrt{11}}{10}$

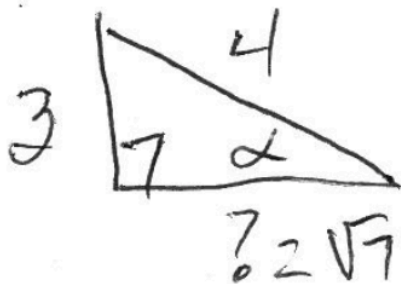**g.** $\frac{5}{4}$

h. $\frac{10}{9}$

i. $\frac{19}{100}$

j. $\frac{\sqrt{19}}{10}$

57. If $\sin \alpha = \frac{3}{4}$, and α is the measure of an acute angle, then $\cos \alpha = ?$

(Note: An acute angle has a degree measure from 0° to 90°.)

A. $\frac{1}{4}$

B. $\frac{4}{3}$

C. $\frac{\sqrt{3}}{2}$

D. $\frac{\sqrt{7}}{4}$

E. Cannot be determined from the given information

Handwritten work:

EASY TRIG

$(?)^2 + 3^2 = 4^2$

$(?)^2 = 16 - 9 = 7$

$? = \sqrt{7}$

D is the only answer with 4 @ hypotenust

$\cos \alpha = \frac{A}{H} = \frac{\sqrt{7}}{4}$

ACT-57B

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GO ON TO THE NEXT PAGE.

If $\tan A = \dfrac{b}{c}$, **where** $b > 0 \ and \ c > 0$ **and** $\dfrac{\pi}{2} < A < \pi,$

then what is $\cos A$ **?**

Possible Answers:

$-\dfrac{\sqrt{c^2 + b^2}}{c}$

$\dfrac{\sqrt{c^2 + b^2}}{c}$

$-\dfrac{c}{\sqrt{c^2 + b^2}}$

$\dfrac{b}{\sqrt{c^2 + b^2}}$

$\dfrac{c}{\sqrt{c^2 + b^2}}$

✔️ **Correct answer:**

$-\dfrac{c}{\sqrt{c^2 + b^2}}$

Explanation:

In the triangle below, the tangent of $\angle A$ is $\dfrac{b}{c}$, or the opposite side of the angle divided by the adjacent side of the angle. According to the Pythagorean

Theorem, the $hypotenuse^2 = c^2 + b^2$

Thus the hypotenuse equals $\sqrt{b^2 + c^2}$.

The cosine of an angle is the adjacent side of the angle divided by the hypotenuse of the triangle, giving us $\dfrac{c}{\sqrt{c^2 + b^2}}$.

However, since $tanA$ is $\dfrac{sinA}{cosA}$, and when A is between $\dfrac{\pi}{2}$ $and \ \pi$, $sinA$ is positive while $cosA$ is negative. Thus, c is negative, giving us the final
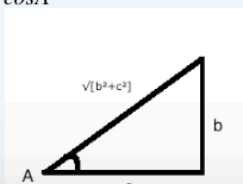
If $tan\theta = -5/12$, **and if** θ **is an angle between** 90 **and** 180 **degrees, which of the following equals** $sin\theta$?

Possible Answers:
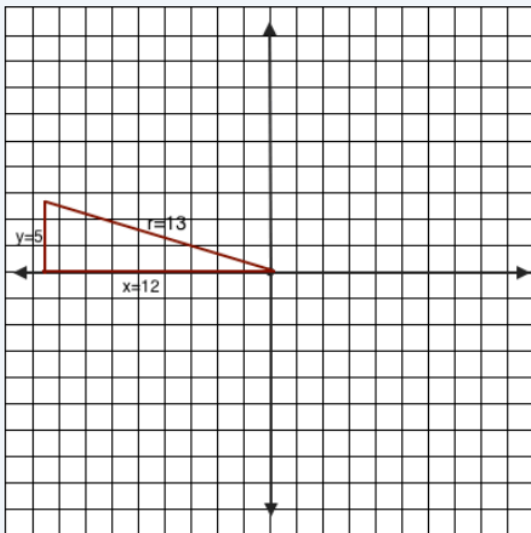
12/13

5/13

−5/13

1

5/12

✔ **Correct answer:**

5/13

Explanation:

An angle between 90 and 180 degrees means that the angle is located in the second quadrant.

The tangent function is derived from taking the side opposite to the angle and dividing by the side adjacent to the angle (**y/x** , as shown in the image).

Hence, the side x is 12 units long and side y is 5 units high. Therefore, according to Pythagorean Theorem rules, the side r must be 13 units long (since $5^2 + 12^2 = 13^2$).

The sine function is positive in the second quadrant. It is also equivalent to the side opposite the angle (y) divided by the hypotenuse (r).

This makes $sin\theta = 5/13$.