

NAME: Solution

MAC 1147 Section 3089
Quiz Nine

Please show all of your work in a NEAT and ORGANIZED fashion.

1. Use the properties of inverse trigonometric functions to evaluate the following expressions:

(a) (1 point) $\cos(\arccos(-0.2)) = -0.2$

(since \cos and \arccos are inverses)

(b) (2 points) $\arctan(\tan(\frac{2\pi}{3})) =$

$\arctan(-\sqrt{3}) =$

$-\frac{\pi}{3}$

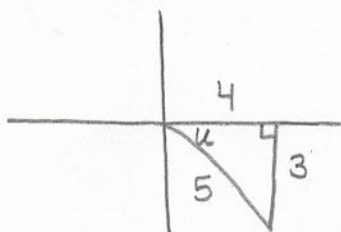
→ not in the range of \arctan

2. (3 points) Find the exact value of the expression. (Hint: Sketch a right triangle.)

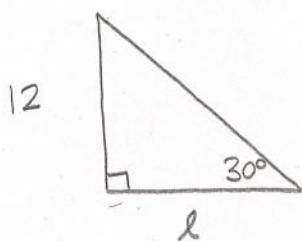
$$\tan(\arcsin(-\frac{3}{5}))$$

Let $u = \arcsin(-\frac{3}{5})$,

$$\tan(u) = -\frac{3}{4}$$



3. (3 points) The sun is 30° above the horizon. Find the length of a shadow cast by a park statue that is 12 feet tall.



$$\tan 30^\circ = \frac{12}{l}$$

$$l = \frac{12}{\tan 30^\circ}$$

$$= \frac{12}{1/\sqrt{3}}$$

$$= 12\sqrt{3} \text{ ft}$$