

Name: KEY Quiz Score: _____ /20

Quiz 4

NO CALCULATORS.

Consider the function $f(x) = -1 + 3 \cos\left(\frac{1}{2}x + \frac{\pi}{6}\right) = -1 + 3 \cos\left[\frac{1}{2}\left(x + \frac{\pi}{3}\right)\right]$.

1. Find each of the following.

Start: $\frac{1}{2}x + \frac{\pi}{6} = 0$

$\frac{1}{2}x = -\frac{\pi}{6}$

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

(a) (2 pts) amplitude: $|3| = 3$

(b) (2 pts) period: $\frac{2\pi}{\frac{1}{2}} = 4\pi$

$\frac{1}{4}$ period = $\frac{1}{4} \cdot 4\pi = \pi$

(c) (2 pts) phase shift (horizontal translation): $-\frac{\pi}{3}$

(d) (2 pts) vertical translation: -1 (1 unit down)

2. (8 pts) Sketch the graph $y = f(x)$. Fill out the whole coordinate grid.

3. (4 pts) Plot and label (with their ordered pairs) the 5 important points in one period.

