1. Given the $\sin \theta=\frac{4}{5}$, find the $\sec \theta$.

In Japan, letting a sumo wrestler make your baby cry is considered $\qquad$ .
A. horrible parenting $-\sec \theta=\frac{5}{4}$
B. good luck $-\sec \theta=\frac{5}{3}$
C. bad luck $-\sec \theta=\frac{4}{3}$
D. a way to make your child smarter $-\sec \theta=\frac{4}{5}$
3. If $\cot \theta=\tan 35^{\circ}$, what is $\theta$ ?

Between 1900 and 1920, $\qquad$ was an
Olympic event.
A $145^{\circ}$ - chariot racing
B $45^{\circ}$ - jousting
C $35^{\circ}$ - pig-back racing
D $55^{\circ}$ - tug of war

| D $55^{\circ}$ - tug of war |  |
| :--- | :--- |
|  |  |

5. Today, high tide measured 10 ft and low tide measured 4 ft . What is the amplitude?
Google was originally named $\qquad$ -.

A $10-\operatorname{spot} \mathbf{B} 6$ - imagine C 3 - backrub
D 4 - handshake
2. The graph of $f$ is given. How are $f$ and $g(x)=3 \cos (2 x)$ different?


Sea otters $\qquad$ when they sleep so they don't drift apart.
A. hold hands -The period of $g(x)$ is half the period of $f(x)$
B. lock feet - the period of $f(x)$ is half the period of $g(x)$
C. kick - the amplitude of $g(x)$ is half the amplitude of $f(x)$
D. lock tails - the amplitude of $g(x)$ is twice the amplitude of $f(x)$
4. Mickey Mouse is observing the ascent of a steel beam being lifted by a crane from a position about 185 feet away. What function models the height $h$ in feet of the beam as a function of the angle of inclination $\theta$ from Mickey Mouse's position to the steel beam?

A baby can cost new parents $\qquad$ hours of sleep in the first year.

A $\mathrm{h}=\theta \tan (185)-1200$
B $\mathrm{h}=185 \tan \theta-750$
C $\mathrm{h}=185 \sin \theta-525$
D $\mathrm{h}=\theta \cos (185)-1000$
6. What is the equation of the midline of the graph of $y=-\sin \left(\frac{x}{6}\right)+4$ ?
Winston Churchill's mother was born in $\qquad$ _.
A $y=4$ - Brooklyn
B $y=-1$ - London
C $x=4$ - Paris
D $x=-1$ - Chicago
7. Which statement about the graph of $y=\tan x$ is true?
$\qquad$ is the only non-human to testify before
Congress.
A The function has zeros whenever $\csc x=0$. - R2D2
B The function has horizontal asymptotes whenever $\cos x=0$. Lassie
C The period is $\pi$. - Elmo
D The function is decreasing everywhere in its domain. - Mr. Ed
9. What equation is represented by the graph?


A $y=\frac{1}{4} \cot x-15$
B $\quad y=\frac{1}{4} \tan x-70$
C $y=\tan \frac{1}{4} x-65$
D $y=\cot \frac{1}{4} x-20$
8. A car is on a Ferris wheel with a radius of 10 feet. To the nearest foot, how far does the car travel over an angle of $\frac{2 \pi}{3}$ radians?

Before Stephen Hillenburg created $\qquad$ , he taught marine biology.

A 17-Ariel
B 132 - Jaws
C 10 - Dory
D 21 - SpongeBob SquarePants
10. What is the phase shift of the graph of $y=4 \cos \left(x-\frac{3 \pi}{4}\right)-1$ ?
Alaska is so big you could fit $\qquad$ New Jerseys in it.

A $\frac{3 \pi}{4}$ units right -75
B 1 units left - 30
C $\frac{3 \pi}{4}$ units left -90
D 4 units right - 55

Evaluate the following trig functions. Sketch a picture and rationalize the denominator.

| $1 . \sin \frac{5 \pi}{3}$ | $2 \cdot \cos 180^{\circ}$ | $3 \cdot \tan \frac{3 \pi}{4}$ | $4 \cdot \sec \left(-120^{\circ}\right)$ |
| :--- | :--- | :--- | :--- |
| $5 \cdot \csc 0$ | $6 \cdot \csc \frac{5 \pi}{6}$ | $7 \cdot \tan 2 \pi$ | $8 \cdot \cos \left(-90^{\circ}\right)$ |

