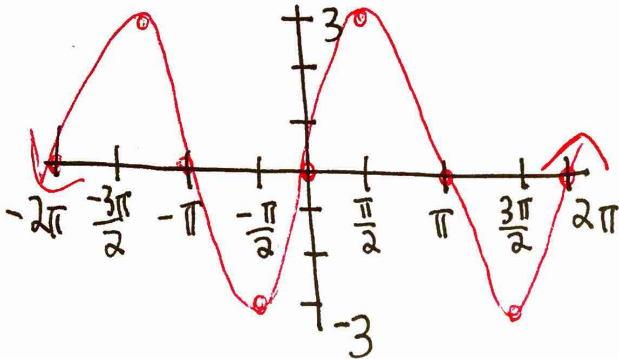
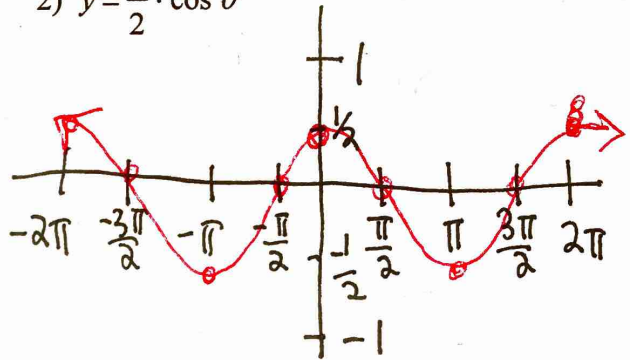


Graph each function using radians. Graph from -2π to 2π .

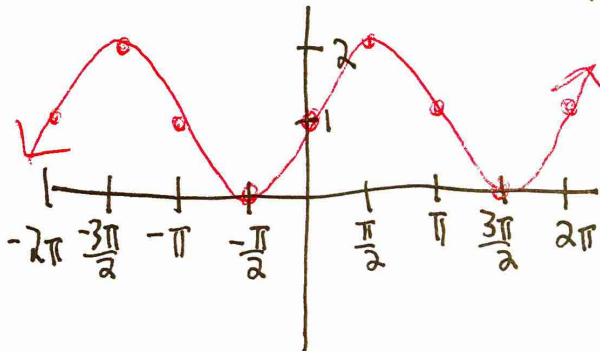
1) $y = 3\sin \theta$ ← 3 times as tall as $y = \sin \theta$



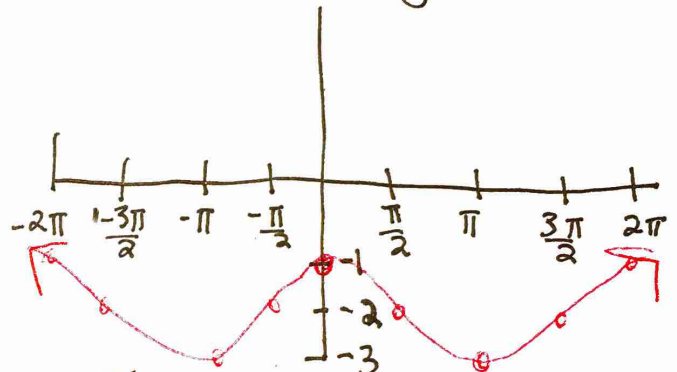
2) $y = \frac{1}{2} \cdot \cos \theta$ ← half as tall as $y = \cos \theta$



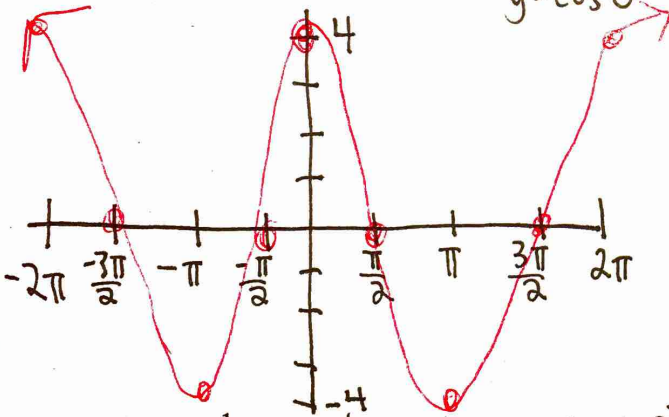
3) $y = \sin \theta + 1$ ← move $y = \sin \theta$ up 1



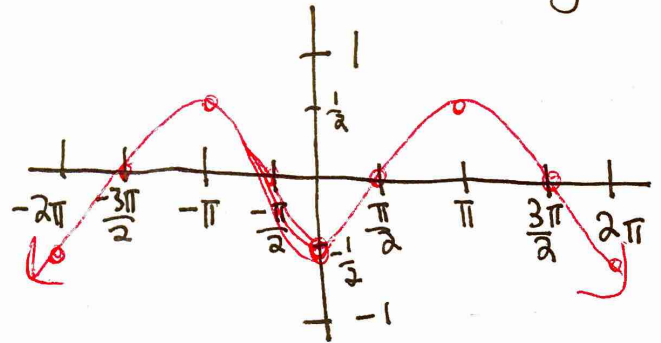
4) $y = -2 + \cos \theta$ ← move $y = \cos \theta$ down 2



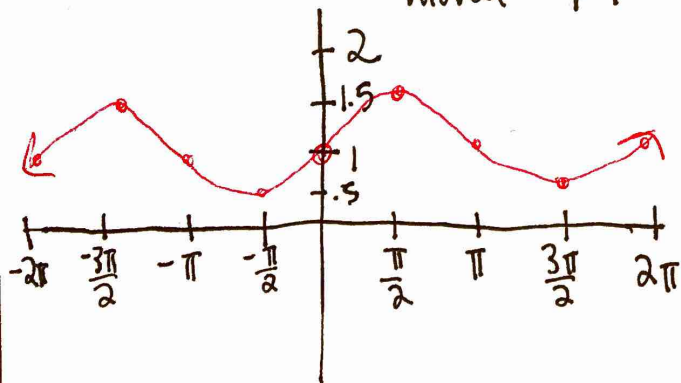
5) $y = 4\cos \theta$ ← 4 times as tall as $y = \cos \theta$



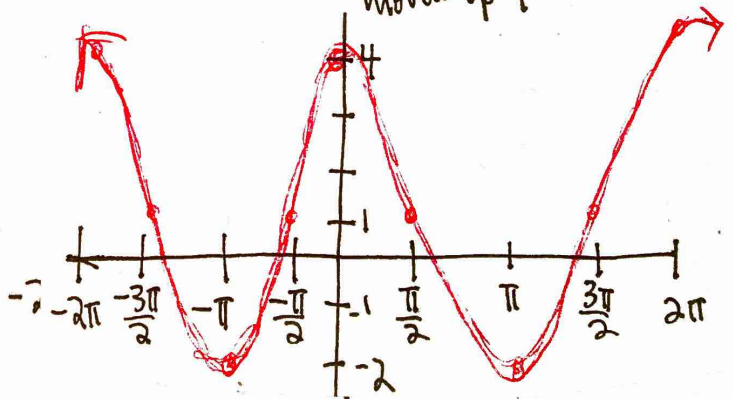
6) $y = -\frac{1}{2} \cdot \cos \theta$ ← negative flips it over, half as tall as $y = \cos \theta$



7) $y = 1 + \frac{1}{2} \cdot \sin \theta$ ← 1/2 as tall as $y = \sin \theta$ moved up 1

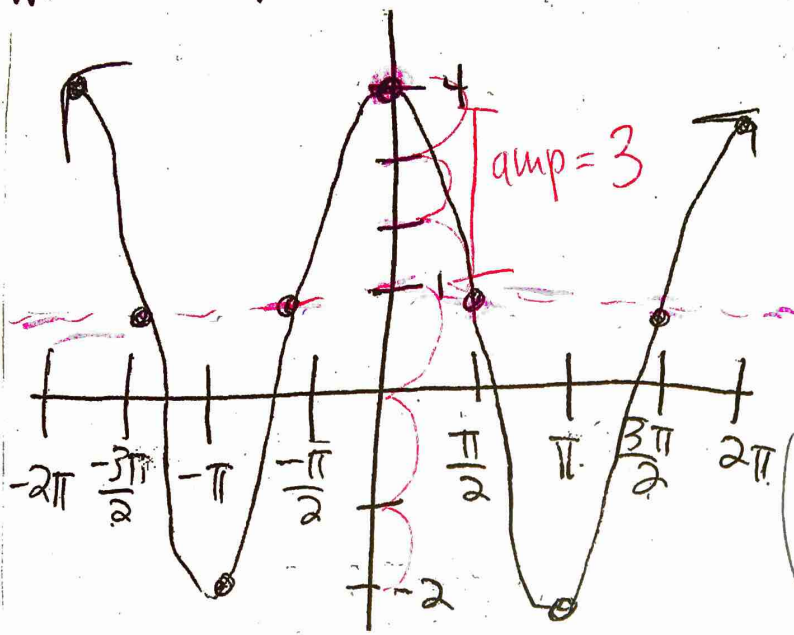


8) $y = 3\cos \theta + 1$ ← 3 times as tall as $\cos \theta$ moved up 1



Write the equation of each function given the graph.

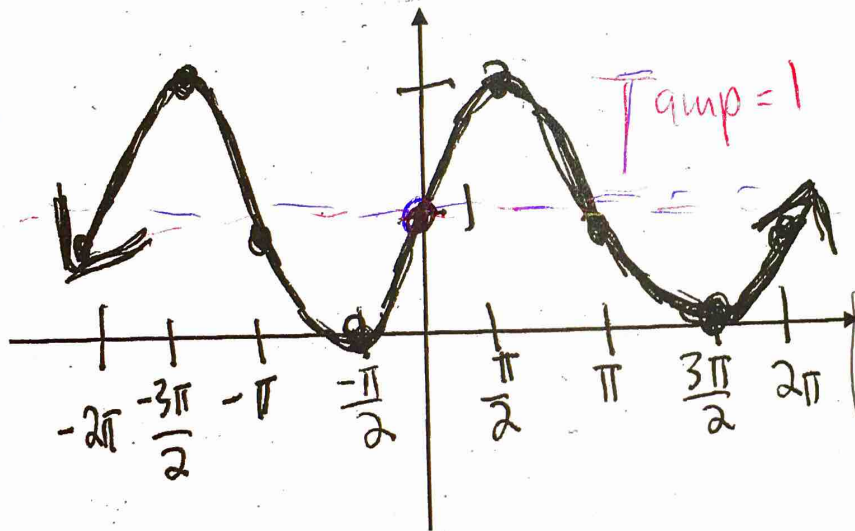
9



it must be cosine b/c
at $\theta=0$ it is at the
top of the function

$$y = 3\cos\theta + 1$$

10



it must be sine b/c
at $\theta=0$ it is in the
middle of the function

$$y = \sin\theta + 1$$

Describe each transformation from the parent graph. Be precise in your wording! (Do not graph!)

11 $y = \cos\theta$ to $y = -2\cos\theta$
it will be twice as tall as $\cos\theta$ & flipped upside down

12 $y = \sin\theta$ to $y = \sin\theta - 5$
it will move down 5 units

13 $y = \sin\theta$ to $y = -\sin\theta + 3$
it will be the sine function moved up 3 units & flipped upside down

14 $y = \cos\theta$ to $y = 3\cos\theta - 1$
it will be 3 times as tall as the cosine function & moved down 1 unit