11. A buoy rises and falls as it rides the waves. The equation $h(t) = 1.5\sin(36t)$ models the displacement of the buoy, $h(t)$, in metres at t seconds. That displacement is the distance above or below the level of "still water" the bouy is when riding the the waves.

a) Determine the amplitude of the function. What does the amplitude represent in this scenario?

K ____/1 C ____/1

b) Determine the period of the function. What does the period represent in this scenario? **K ____/1 C ____/1**

Bonus (0.5 each)

c) What is the displacement at 14 s?

d) At what time, to the nearest tenth of a second, does the displacement first reach 0.7 m.

12. A certain town has a windmill whose blades reach 20 m high. One tip of one of the blades is painted red. Over a period of 30 seconds, that red tip moves from 20 m from the ground (highest point) down to 2 m from the ground and back up to 20 m away as the blades turn.

a) What is the equation of the central axis? **T ____/1**

b) What is the length of a windmill blade? **T ____/1**

c) Determine a sinusoidal equation which models the rotation of the red tipped blade. **T ____/2**