

Name: _____

1. A dryer spins 4 times in one second. Find the period and the frequency of the dryer.

$$T = \text{period} = \frac{\text{time}}{\text{events}} = \frac{1 \text{ sec}}{4} = .25 \text{ sec}$$

$$f = \text{frequency} = \text{events/time} = 4/1 \text{ sec} = 4 \text{ Hertz} = 4 \text{ Hz.}$$

2. How long does the dryer take to spin 8 times?

$$T = \frac{\text{time}}{\text{events}} \quad .25 = \frac{\text{time}}{8} \Rightarrow \text{time} = (.25)(8) = 2 \text{ sec.}$$

3. A blender spins 8400 times in 1 min. Find the frequency and the period of the blender.

$$T = \frac{60 \text{ sec}}{8400} = 0.00714 \text{ sec} \quad \left| \quad f = \frac{1}{T} = \frac{1}{.007142} = 140 \text{ Hz.} \right.$$

4. How many times does the blender spin in 27 seconds?

$$f = \text{events/sec} \rightarrow \text{freq} \times \text{time} = \text{events.}$$

$$140 \text{ Hz} \times 27 \text{ sec} = 3780 \text{ spins.}$$

5. I clap my hands three times in one second. Find the period and the frequency of my hand claps.

$$T = \frac{1 \text{ sec}}{3} = 0.3\bar{3} \text{ sec}$$

$$f = \frac{\text{events}}{\text{time}} = 3/1 \text{ sec} = 3 \text{ claps/sec} = 3 \text{ Hz.}$$

6. A child swings back and forth on a swing at a frequency of 0.6 Hz. How long is the period of the swing?

$$T = \frac{1}{f} = \frac{1}{0.6} = 1.6\bar{6} \text{ sec.}$$

7. A speaker cone vibrates back and forth at 100 Hz. Find the period of one vibration.

$$T = \frac{1}{f} = \frac{1}{100} = 0.01 \text{ sec}$$

8. A motor spins once in 0.35 seconds. Find the frequency.

$$f = \frac{\text{events}}{\text{time}} = \frac{1}{.35} = 2.857 \text{ Hz} \quad \text{Hertz} = \text{per sec.}$$

9. A car motor spins at 4500 rpm. This is 4500 revolutions in 1 min. Find the frequency and period of the motor.

$$T = \frac{\text{time}}{\text{events}} = \frac{60 \text{ sec}}{4500} = 0.0133 \text{ sec}$$

$$f = \frac{\text{event}}{\text{time}} = \frac{4500}{60} = 75 \text{ Hz}$$

10. A car drives to Kamloops, a distance of approximately 70 km, at average speed of 114 km/hr. How long did it take to get to Kamloops?

$$d = v \cdot t \rightarrow t = \frac{d}{v} = \frac{70}{114} = 0.614 \text{ hours} = 36.8 \text{ mins}$$

11. A truck drives to Vancouver in 4 hours, covering a distance of 380 km. Find the average speed of the truck.

$$v = \frac{d}{t} = \frac{380}{4} = 95 \text{ km/hr}$$

12. A runner travels 10 km in 0.75 hours. What was the average speed of the runner?

$$v = \frac{d}{t} = \frac{10}{.75} = 13.3 \text{ km/hr.}$$

13. Convert 60 km/hr into m/s. Show all your working.

$$60 \frac{\text{km}}{\text{hr}} \times \frac{1 \text{ hr}}{3600 \text{ sec}} \times \frac{1000 \text{ m}}{1 \text{ km}} = 16.7 \text{ m/s}$$