

# Stop Motion Animation Mathematics Challenge

## *Frames per second – Who Knew?*

1. **Since 1927**, the standard frame rate for film has been **24 fps** (frames per second). How many frames are there in 1 minute of Film?

**1,440 frames**

2. **TV frame rate** in Australia is **25fps** (frames per second)..

How many frames for 1 minute of TV? Write down the sum and **then** then the answer

**$25 \times 60 = 1500$  frames**

3. **25fps** is the frame rate used for TV video content in Australia, the UK and any other countries that use a 50Hz electrical frequency standard.

What is the relationship between the fps and Hz(hertz)?

**1:2 or fps is 50% of Hz**

4. The **American** electrical frequency standard is 60 Hz.

Using the above ratio, what is the **fps** for American TV?

**30fps**

This is the usual frame rate for items such as iPhones and iPads produced in the US.

5. **Stop Motion** average industry frame rate is **15 fps**

How many frames for 1 minute of Stop Motion? Write down the sum and then then the answer.

**$15 \times 60 = 900$**

6. **In our animation** we will be using a frame rate of between 8 – 12fps

How many frames for 1 minute of Stop Motion if our frame rate is 10fps.?

Write down the sum and then then the answer.

**$10 \times 60 = 600$**

**WOW that's a lot.**

7. How many frames for 30 seconds of Stop Motion if our frame rate is 10fps?

Write down the sum and then then the answer.

**$10 \times 30 = 300$**

**That sounds a bit more like it.**

### **Random Questions?????**

What is a Hertz? Why is the electrical frequency called Hertz? Who is Hertz?

Stop it, too many questions, you certainly don't want to be asking all this stuff.

**WARNING** Don't look at these videos, they may give you an idea about how to explain a Mathematical Problem using Stop Motion. This will probably be extremely difficult to do, take too much of your time to complete and should not be undertaken under any circumstances.

<https://www.youtube.com/watch?v=DqxnDfRj3cE>

<https://www.youtube.com/watch?v=tij4rtp7mGg>