Waves and Periodic Motion Practice Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Formulas: λ = v/f

v = λf

f= v/λ

f = 1/T

T = 1/f

$$T=2π\sqrt{L}/g$$

1. What is the wavelength of the wave that has a velocity of 37 m/s and a frequency of 10 Hz?

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| Formula: | Plug in numbers: | Answer: |

2. A transverse wave is traveling at 49m/s and travels 14 cycles in 2 seconds. This makes it’s frequency 7 Hz. What is the wave’s wavelength?

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| Formula: | Plug in numbers: | Answer: |

3. A wave is traveling at 108 m/s and its length from crest to crest is 0.4 m. What is the frequency of the wave?

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| Formula: | Plug in numbers: | Answer: |

4. What is the period of the wave in number 3?

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| Formula: | Plug in numbers: | Answer: |

5. What is the wave’s frequency if it has a period of 34 seconds?

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| Formula: | Plug in numbers: | Answer: |

6. What is the wave’s frequency if the wave is traveling at 89 m/s and has a wavelength of 11 m?

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| Formula: | Plug in numbers: | Answer: |

7. What is the period of the wave in number 6?

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| Formula: | Plug in numbers: | Answer: |

8. A wave is traveling at 117 meters every 5 seconds. The distance from crest to crest is .25 m. What is the frequency of this wave?

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| Formula: | Plug in numbers: | Answer: |

9. What is the period of the wave in number 8?

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| Formula: | Plug in numbers: | Answer: |

10. On Earth, a pendulum has a length of 0.738m. What is the period?

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| Formula: | Plug in numbers: | Answer: |

11. What is the frequency of the pendulum in number 10?

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| Formula: | Plug in numbers: | Answer: |

12. If we need a pendulum to complete one cycle in 5 seconds, what must its length be?

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| Formula: | Plug in numbers: | Answer: |

13. We take the pendulum from number 12 to the moon where its period is now 12.29 s. What is the gravity on the moon?

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| Formula: | Plug in numbers: | Answer: |

14. What is the number (with unit) for gravity on Earth?