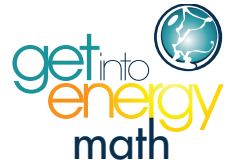


Name: _____ Date: _____



Get Into Energy Math
Student Quiz 5
Whole Number Operations

1. Kari, a lineworker helper, has received 12 spare fuses from the warehouse. She was asked by the chief to divide all of them evenly in the line truck tool cribs. Which number of cribs will not permit an even distribution?

- A. 2 cribs
- B. 3 cribs
- C. 4 cribs
- D. 5 cribs

2. Alice has a box of lag bolts to restock the line truck tool cribs. The chief asked that the lag bolts be distributed evenly in the truck tool cribs. The box contains 100 lag bolts. Which number of cribs will not permit an even distribution?

- A. 10 cribs
- B. 5 cribs
- C. 2 cribs
- D. 3 cribs

3. Jerry is measuring the amount of amperage in a circuit. He has to report the amperage to the tenth place. Which of the numbers below should Jerry report?

- A. 50 amps
- B. 5 amps
- C. 0.5 amps
- D. 0.050 amps

4. Lynne is setting out a lay-down area so equipment can be set up for a storm response. The size of the lay-down area is 15 feet by 15 feet. How big of an area has Lynne created?

- A. 30 ft^2
- B. 60 ft^2
- C. 225 ft^2
- D. 120 ft^2

5. Karen is required to calculate the impedance of an AC circuit. Impedance is calculated by taking the square root of the squared sums of the ohms of resistance and the ohms of inductive resistance. If the squared sums of the ohms of resistance and the ohms of inductive resistance is 64, what is the impedance?

- A. 124 ohms
- B. 32 ohms
- C. 16 ohms
- D. 8 ohms

6. Jane is numbering new poles in a subdivision. The pole numbering sequence matches a location to identify where the pole is installed. The numbering sequence for the first 4 poles is 2025125, 2025200, 2025275 and 2025350. What would the next number in the sequence be?

- A. 2025400
- B. 2025425
- C. 2025450
- D. 2025375

7. The line crew is responsible for replacing street lights and darkness sensors in street lights. The street light bulbs are shipped 8 to a box, and the sensors are shipped 12 to a box. What is the minimum number of bulb boxes that must be ordered in order to have one bulb for every sensor and no extra sensors?

- A. 6 boxes of bulbs
- B. 3 boxes of bulbs
- C. 8 boxes of bulbs
- D. 2 boxes of bulbs

8. Bill is determining the ohms of impedance in a circuit. Impedance is equal to the voltage of direct current divided by the amps in the circuit. Bill measures 240 volts in the circuit with 7 amps, which equals 34.285 ohms of impedance. What is the ohm reading rounded to the nearest tenth?

- A. 34.2 ohms
- B. 34.3 ohms
- C. 34.285 ohms
- D. 34.29 ohms

9. Jim is measuring ohms of resistance in a circuit. He takes four measures, which read 3.4 ohms, 3.410 ohms, 3.41 ohms, and 3.4131 ohms. Which of the measurements is the most accurate based on the number of significant digits?

- A. 3.410 ohms
- B. 3.41 ohms
- C. 3.4 ohms
- D. 3.4131 ohms

10. Val is asked to express the total energy in kilowatt-hours produced by the plant in one month in scientific notation. She has previously determined the energy is 12,310 megawatt-hours and knows that this is 12,310,000 kW-h. Which of the following represents the monthly energy to the same accuracy in scientific notation?

- A. 0.12300×10^5 kW-h
- B. 1.231×10^7 kW-h
- C. 12.310×10^6 kW-h
- D. 123.10000×10^5 kW-h

11. Latoya has to use a crane to move a pipe into a trench. In order to determine if the 1-inch rope can handle the weight of the pipe, Latoya has to square the rope size factor, which for a 1-inch rope is the number 8, and multiply it by the rope safety factor. What number will Latoya use for the rope size factor squared?

- A. 64
- B. 16
- C. 48
- D. 60

12. Jake has to calculate the area of a piece of circular plate steel. The calculation equals π times the radius squared. In this case, the radius squared equaled 196 in². What is the radius of the circular piece of plate steel?

- A. 16 inches
- B. 17 inches
- C. 14 inches
- D. 98 inches

13. The gas distribution crew is installing several new connections to run gas to new homes. Each connection requires a tapping fixture into the main pipe. Christine works in the warehouse and is providing the equipment for the installations. The tapping connections come 10 to a box and Christine can only load 5 boxes on a truck at a time. What are the possible number of tapping connections that Christine can have on one truck?

- A. 10, 20, 30, 40, 50 tapping connections
- B. 5, 15, 25, 35, 45 tapping connections
- C. 10, 20, 30, 50, 60 tapping connections
- D. 5, 10, 15, 20, 25 tapping connections

14. Larry has boxes of gas fittings that need to be distributed into the gas trucks. The boxes contain either 48, 60, or 96 fittings. What is the greatest common factor for this number of fittings?

- A. 4 fittings
- B. 6 fittings
- C. 12 fittings
- D. 16 fittings

15. Gail is loading bolts into the gas trucks. She has bolt lengths of 2 mm, 6 mm, and 18 mm. What would be the next bolt length in this sequence?

- A. 26 mm
- B. 24 mm
- C. 20 mm
- D. 54 mm

16. Matt and the gas crew are reviewing the thread stress tables for the bolts they are using to torque a valve body. The table indicates that the thread stress for a 5-44 fine thread bolt is 0.00716 thread root/square inch. How many significant digits are there in 0.00716 thread root/square inch?

- A. 6 digits
- B. 5 digits
- C. 3 digits
- D. 4 digits

17. Matt and the gas crew are reviewing the thread stress tables for the bolts they are using to torque a valve body. The table indicates that the thread stress for a 5-44 fine thread bolt is 0.00716 thread root/square inch. Matt needs to convert the number to scientific notation. Which number would Matt report?

- A. 0.00716 thread root/square inch
- B. 0.0072×10^2 thread root/square inch
- C. 7.16×10^{-3} thread root/square inch
- D. 7.16×10^3 thread root/square inch

18. Gary, a relay technician, is asked to record the trip setting on a protective relay to the milliamp (1/1,000 of an amp). Which of the numbers below should Gary report?

- A. 6.0 amps
- B. 6.00 amps
- C. 6.000 amps
- D. 6.0000 amps

19. As part of the preventive maintenance schedule, Tavon, a power plant boiler technician, is preparing the job order to replace the heat tiles in the number 3 furnace. The furnace is 16 feet by 16 feet. How many total square feet of tiles will Tavon need?

- A. 64 ft^2
- B. 100 ft^2
- C. 32 ft^2
- D. 256 ft^2

20. Kari, a line helper, is helping with the installation of a new pole that is 35 feet from the ground to the top. She will install a neutral wire 5 feet below the base of the transformer, and the transformer base is 5 feet below the top of the pole. How far up from the base of the pole must the neutral wire be installed?

- A. 20 ft
- B. 25 ft
- C. 30 ft
- D. 35 ft

21. Bill is taking a measurement of a meter constant transformer. The reading indicates the constant transformer is reading at 0.977 percent of full load. The constant transformer should be reading at 1.10 percent of full load. How much of an increase does Bill need to adjust the constant transformer in order to make it read correctly?

- A. 0.123%
- B. 0.0123%
- C. 1.23%
- D. 0.015%

22. Ernesto is installing a temporary electrical service for a house under construction. The temporary pole is 20 feet long and it must be buried 4 feet in the ground. A meter panel that needs to be installed has to be 5 feet off the ground. How far up the pole does Ernesto mark for the meter installation before the pole is placed in the ground?

- A. 10 ft up the pole
- B. 5 ft up the pole
- C. 7 ft up the pole
- D. 9 ft up the pole

23. Alice is working with a crew pulling an underground cable. The cable must be lubricated during the pull. Alice is expected to use 8 pounds of lubricant for every 100 feet of cable. The cable pull is 400 feet long. How many pounds of lubricant does Alice need to load into the truck?

- A. 32 lbs
- B. 38 lbs
- C. 12.5 lbs
- D. 24 lbs

24. Craig is working with the gas crew installing a new plastic piping system in a residential neighborhood. The system is 1,800 feet long and there is a tap for the houses every 75 feet. How many taps does Craig have to install to complete a connection for every house?

- A. 20 taps
- B. 25 taps
- C. 24 taps
- D. 22 taps

25. Kathy is making a bulk order to restock the warehouse with plastic pipe fittings. Each box of fittings has 18 taps. She needs 10,000 boxes. How many taps is Kathy ordering?

- A. 18,000 taps
- B. 1,800 taps
- C. 180 taps
- D. 180,000 taps