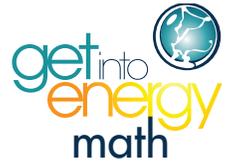


Name: _____ Date: _____



Get Into Energy Math
Student Quiz 10
Fractions and Decimals

1. Ned is adding SF₆ gas to gas-cooled transformers in a transmission substation. Ned notes that the last 3 additions were $\frac{1}{3}$ of a bottle, $\frac{4}{5}$ of a bottle, and $\frac{4}{5}$ of a bottle. Besides reporting $\frac{29}{15}$ of a bottle of SF₆ gas was added in the last 3 months, which of the following could Ned also use to accurately report the amount of SF₆ gas added?

- A. 2 bottles
- B. 1 bottle
- C. $1 \frac{14}{15}$ bottles
- D. $1 \frac{1}{15}$ bottles

2. Leala is an electrician required to add oil to the transformers in a substation. Leala added the following amount of oil to three transformers: one transformer needed 1 gallon, another needed $\frac{1}{6}$ of a gallon, and the last transformer needed $\frac{2}{3}$ of a gallon. Leala could report that she used $1 \frac{5}{6}$ of a gallon. Instead of $1 \frac{5}{6}$ of a gallon, which of the following could Leala also say?

- A. $\frac{35}{6}$ of a gallon
- B. $\frac{11}{6}$ of a gallon
- C. $\frac{6}{11}$ of a gallon
- D. 1.75 gallons

3. Cassandra, a plant operator, noted that the coal usage for the past 24 hours was $\frac{5}{8}$ of silo #2 and $\frac{7}{8}$ of silo #4. Besides recording that $\frac{12}{8}$ of the total silo volume was used, which of the following could she say was used during the 24-hour period?

- A. $\frac{2}{8}$ of the silo
- B. $1 \frac{3}{8}$ of the silo
- C. $1 \frac{1}{2}$ of the silo
- D. $1 \frac{2}{8}$ of the silo

4. Eve, an engineering tech, is working with an overhead line crew doing thermal inspections of the line taps in an industrial park. The crew did $\frac{2}{3}$ of the taps in one section of the park and $\frac{1}{5}$ of the taps in a different section. What fraction of the taps has Eve and the crew inspected?
- A. $\frac{2}{15}$ of the taps
 - B. $\frac{3}{10}$ of the taps
 - C. $\frac{13}{15}$ of the taps
 - D. $\frac{3}{4}$ of the taps
5. Zac is an electrician responsible for adding oil to network transformers. Zac has added the following amount of oil to five network transformers: $\frac{1}{2}$ gallon, $\frac{1}{3}$ gallon, $\frac{1}{4}$ gallon, $\frac{3}{4}$ gallon, and $\frac{2}{3}$ gallon. How many gallons of oil did Zac use to fill the five transformers?
- A. $2 \frac{1}{2}$ gallons
 - B. $1 \frac{1}{2}$ gallons
 - C. $2 \frac{1}{4}$ gallons
 - D. $2 \frac{8}{12}$ or $2 \frac{2}{3}$ gallons
6. Transformer visual inspections take $\frac{1}{3}$ of an hour to complete. Pete's line crew has 10 inspections to complete. How many hours of inspections will the crew need for all 10 of the inspections?
- A. $3 \frac{1}{3}$ hours
 - B. 3 hours
 - C. 30 hours
 - D. 5 hours

7. Gail has $5 \frac{1}{4}$ gallons of oil that she will distribute evenly into 6 network transformers. What amount of oil will Gail add to each transformer?
- A. $\frac{3}{4}$ of a gallon
 - B. $\frac{7}{8}$ of a gallon
 - C. $\frac{1}{8}$ of a gallon
 - D. $\frac{1}{6}$ of a gallon
8. The coal train had two cars with only partial loads. One was $\frac{2}{5}$ full and the other was $\frac{1}{5}$ full. If both loads were placed in one coal car, how full would it be?
- A. $\frac{3}{10}$ full
 - B. $\frac{3}{5}$ full
 - C. $\frac{2}{25}$ full
 - D. $\frac{1}{5}$ full
9. During a recent inspection of the water purification system, $\frac{1}{8}$ of the purification columns were undergoing scheduled maintenance, and an additional $\frac{1}{8}$ of the columns were offline and needed to be back-flushed due to low flow rates. What fraction of the total purification columns are still available for use?
- A. $\frac{2}{8}$ or $\frac{1}{4}$ of the columns
 - B. $\frac{6}{8}$ or $\frac{3}{4}$ of the columns
 - C. $\frac{2}{16}$ or $\frac{1}{8}$ of the columns
 - D. $\frac{1}{2}$ of the columns

10. After recording the air compressor's run time for the week, Kari noted that last week's total run time was $2,356 \frac{7}{10}$ hours and this week's total run time is $2,395 \frac{3}{10}$ hours. How many more hours did the air compressor run this week than last week?

- A. $41 \frac{4}{10}$ or $41 \frac{2}{5}$ hours
- B. $42 \frac{1}{10}$ hours
- C. $38 \frac{6}{10}$ or $38 \frac{3}{5}$ hours
- D. $39 \frac{5}{10}$ or $39 \frac{1}{2}$ hours

11. Enrique, preparing for his maintenance day, sees that he has three water pumps that each have an estimated $\frac{1}{4}$ -hour preventive maintenance task scheduled and a tank cleaning task listed at 5 hours. If he chooses to do work on just the pumps before taking a break, how long should it take?

- A. 3 hours
- B. $\frac{3}{4}$ hours
- C. $\frac{1}{2}$ hours
- D. $\frac{4}{3}$ or $1 \frac{1}{3}$ hours

12. Kari is preparing for the plant maintenance shutdown by readying work packages on the generators. If the air filter replacement for each of the three generators takes an estimated $2 \frac{3}{4}$ hours, how many total hours is needed to replace the air filters in the three generators?

- A. $8 \frac{1}{4}$ hours
- B. $6 \frac{9}{12}$ or $6 \frac{3}{4}$ hours
- C. $6 \frac{1}{2}$ hours
- D. $8 \frac{1}{2}$ hours

13. Jim, a welding inspector, is reviewing welds on steel plates being used to cover a trench cut through a town road. Jim found that $\frac{1}{5}$ of the welds had undercut, which is a weld root that is left unfilled by weld metal, on one set of plates, and $\frac{1}{7}$ of the welds had undercut on the other plate. What fraction of the welds had undercut?
- A. $\frac{12}{35}$ of the welds had undercut
 - B. $\frac{1}{6}$ of the welds had undercut
 - C. $\frac{2}{35}$ of the welds had undercut
 - D. $\frac{1}{12}$ of the welds had undercut
14. Frank and his gas crew have responded to a gas system outage of 45 customers in a residential neighborhood. Frank has split his crew into 2 working groups to relight customer pilot lights. One crew had estimated they had relit $\frac{1}{3}$ of the customers in the first hour. The second crew estimated they had relit $\frac{1}{5}$ of the customers. What fraction of the customers still need to have their pilots relit?
- A. $\frac{7}{15}$ of the customers remain
 - B. $\frac{1}{4}$ of the customers remain
 - C. $\frac{1}{15}$ of the customers remain
 - D. $\frac{8}{15}$ of the customers remain
15. Marla is a stock person who is responsible for restocking the gas trucks at the end of the day. Marla has $\frac{1}{2}$ of a case of fittings to evenly divide among 6 gas trucks. What fraction of a case of fittings will be put on each of the trucks?
- A. $\frac{1}{12}$ of a case of fittings
 - B. $\frac{1}{6}$ of a case of fittings
 - C. $\frac{1}{3}$ of a case of fittings
 - D. $\frac{1}{9}$ of a case of fittings

16. Vinny and his gas crews are relighting pilots in an apartment complex where they repaired a gas leak. Vinny's crews are responsible for $2\frac{1}{3}$ of the apartment buildings in the complex that need their pilots relit. Vinny has divided his crew into 4 working groups to speed up the relight process. If all groups help an equal number of buildings, what fraction of the buildings will each crew handle?

- A. $1\frac{5}{7}$ of the buildings
- B. $\frac{5}{7}$ of the buildings
- C. $\frac{7}{12}$ of the buildings
- D. $\frac{3}{12}$ or $\frac{1}{4}$ of the buildings

17. Monika was assigned to patrol a mile-long right-of-way to identify any damage to the electrical system after a thunderstorm. Monika had traveled about $\frac{1}{8}$ of a mile before she was stopped by a large tree that had fallen across the electrical wires. How would Monika express the distance she had traveled as a decimal?

- A. 0.125 of a mile
- B. 1.25 miles
- C. 12.5 miles
- D. 1.25% miles

18. Laurie is restocking the gas distribution trucks with pipe fusion fittings. She found that $\frac{2}{3}$ of the trucks needed 1-inch butt fusion fittings. How would Laurie report her findings to her supervisor as a decimal number?

- A. 667% of the trucks
- B. 6.67 of the trucks
- C. 0.667 of the trucks
- D. 0.0667 of the trucks

19. Cathy is restocking the line trucks. She has 150 wedge connectors and she is required to put 30 wedge connectors on each truck. Thirty is what percentage of 150?

- A. 20%
- B. 6%
- C. 5%
- D. 15%

20. Laura and her line crew are pulling wire for a new subdivision. The spool on the truck has 600 feet of primary copper wire. The crew used 28% of the spool in the morning. How many feet of wire did the crew use?

- A. 432 ft
- B. 214 ft
- C. 386 ft
- D. 168 ft

21. Yolanda is performing hot stick inspections. She found that 5%, or 8 sticks, either needed an expired inspection label or had cracks that would impact the safety of the crew. How many total hot sticks has Yolanda inspected?

- A. 100 sticks
- B. 160 sticks
- C. 40 sticks
- D. 120 sticks

22. Howard, a plant operator, has been asked to reduce his plant's output from 100%, full power, at 140 MW to 120 MW as a large customer goes offline for the weekend. What is the plant's new output in percent?

- A. 86%
- B. 14%
- C. 108%
- D. 120%

23. Chin, a plant operator, has been asked to adjust the flow of power from the plant to the Hinkson Creek substation to 4.5 MW. If Hinkson Creek is currently drawing 40% of that amount, how much additional power in MW must Chin feed to Hinkson?

- A. 2.7 MW
- B. 4.10 MW
- C. 1.80 MW
- D. 2.75 MW

24. Ramon notes the addition of 200 gallons of #2 diesel fuel to the backup generator B's diesel storage tank raises the fuel gauge from 25% to 50% full. What should he estimate to be the volume of B's tank?

- A. 250 gallons
- B. 400 gallons
- C. 550 gallons
- D. 800 gallons

25. Wen is restocking the gas trucks. She has 150 pipe connectors and she is required to put 30 pipe connectors on each truck. What percentage of the 150 connectors is stocked on each truck?

- A. 20%
- B. 6%
- C. 2%
- D. 15%