

Assignment

Write

1. In your own words, define a rational equation. Use examples to illustrate your reasoning.

Remember

Rational expressions and equations are used to solve problems that involve comparing two quantities of the same unit of measure.

Practice

1. In football, a quarterback's completion percentage is the ratio of the number of complete passes to the total number of pass attempts. The current record holder for highest completion percentage is Chad Pennington who completed 66% of his passes over the course of his career in the National Football League. The quarterback in second place completed 3843 passes out of 5853 attempts. Estimate the number of consecutive completed passes the second place quarterback must throw in order to break the record. Show all of your work and explain your reasoning.
2. Josie compares two different refrigerators at the local hardware store. The sales tags are shown. Josie does some research online and learns that a kilowatt hour costs approximately \$0.06. She also learns that the average refrigerator lasts about 10 years.

ICY COLD

- Crushed Ice Dispenser
- Price \$699.00
- Uses 75 Kilowatt hours of electricity per month

COOL AS A CUCUMBER

- Gold Star EPA efficiency rating
- Price \$825
- Uses 30 Kilowatt hours of electricity per month

- a. Write a function to represent the average cost of each refrigerator per month.
- b. Which refrigerator will have a lower average monthly cost over the next ten years? Show all of your work and explain your reasoning.

Stretch

1. Blaise is running in a ten mile race. Blaise runs the first 4 miles of the race at a pace that averages 0.5 miles an hour faster than the last 6 miles of the race. It takes Blaise one hour and 45 minutes to run the 10 miles. Write and solve an equation to determine Blaise's average speed for the first 4 miles and the last 6 miles of the race. Show your work.

Review

1. Perform each operation. List any restrictions on the variables.

a. $\frac{3}{3x^2 - 11x - 4} + \frac{2x}{x^2 - 3x - 4}$

b. $\frac{2x - 4}{3x^3} \cdot \frac{9x}{x - 2}$

2. The graph shows the the level of medication in milligrams, y , in a patient's bloodstream x hours after the medication is taken. The dots represent the actual data and the curve represents the quartic regression equation that best fits the data, $y = 0.03x^4 + 0.41x^3 - 7.2x^2 + 22.9x$. Consider the data and the regression equation. Predict the patients level of medication 2.5 hours after taking the medicine. How accurate is this prediction? Explain your reasoning.

