1. a. What is the decimal expansion of the number $\frac{35}{7}$? Is the number $\frac{35}{7}$ rational or irrational? Explain.

b. What is the decimal expansion of the number $\frac{4}{33}$? Is the number $\frac{4}{33}$ rational or irrational? Explain.
2. 
   a. Write \(0.\overline{345}\) as a fraction.

   b. Write \(2.\overline{840}\) as a fraction.

   c. Brandon stated that \(0.66\) and \(\frac{2}{3}\) are equivalent. Do you agree? Explain why or why not.
d. Between which two positive integers does $\sqrt{33}$ lie?

e. For what integer $x$ is $\sqrt{x}$ closest to 5.25? Explain.
3. Identify each of the following numbers as rational or irrational. If the number is irrational, explain how you know.

a. \( \sqrt{29} \)

b. 5.39

c. \( \frac{12}{4} \)

d. \( \sqrt{36} \)

e. \( \sqrt{5} \)

f. \( \sqrt[3]{27} \)

g. \( \pi = 3.141592\ldots \)

h. Order the numbers in parts (a)–(g) from least to greatest, and place them on a number line.
4. Circle the greater number in each of the pairs (a)–(e) below.

   a. Which is greater, 8 or $\sqrt{60}$?

   b. Which is greater, 4 or $\sqrt{26}$?

   c. Which is greater, $\sqrt{64}$ or $\sqrt{16}$?

   d. Which is greater, $\sqrt{125}$ or $\sqrt{30}$?

   e. Which is greater, $-7$ or $-\sqrt{42}$?

   f. Put the numbers 9, $\sqrt{52}$, and $\sqrt{216}$ in order from least to greatest. Explain how you know which order to put them in.
5.

\[ \sqrt{5} \]

a. Between which two labeled points on the number line would \( \sqrt{5} \) be located?

b. Explain how you know where to place \( \sqrt{5} \) on the number line.

c. How could you improve the accuracy of your estimate?
6. Determine the positive solution for each of the following equations.

   a. \( 121 = x^2 \)

   b. \( x^3 = 1000 \)

   c. \( 17 + x^2 = 42 \)

   d. \( x^3 + 3x - 9 = x - 1 + 2x \)
e. The cube shown has a volume of 216 cm³.
   i. Write an equation that could be used to determine the length, \( l \), of one side.

\[ V = 216 \text{ cm}^3 \]

ii. Solve the equation, and explain how you solved it.