

Instructions: Show all work. Partial credit can only be given where work is shown. Be sure to answer all parts of each question. You may not use a calculator on this quiz.

1. Solve the inequality $\frac{1}{6}x < -\frac{5}{12}$. Draw the solution on a number line.

2. Consider the following set:

$$\left\{ 9, -0.25, \frac{\sqrt{2}}{\pi}, -1, |-23|, -\sqrt{\frac{81}{16}}, 301.001000100001\dots, \frac{39}{13}, \frac{47}{5}, \sqrt{\pi e}, (-4)^2 \right\}$$

Using correct set notation, give the elements that also belong to each of the following sets.

- The Natural Numbers
- The Rational Numbers
- The Irrational Numbers
- Integers

3. Compute and simplify

a. $\sqrt{18} \times \sqrt{32}$

b. $\frac{\sqrt{96}}{\sqrt{6}}$

4. Express the value $(-32)^{3/5}$ without exponents.

5. Solve the inequality $\frac{3}{2}x - 2 < \frac{5}{6}x + \frac{1}{3}$. Draw the solution on a number line.