Word Problems with Rational Numbers

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Mathematics 9
Rational Numbers
Word Problems

A. Solving Word Problems with Rational Numbers

When you are working with a word problem with rational numbers you will be required to translate the language into a mathematical expression and be able to solve it correctly. Use the "key words" in the question to help get the mathematical expression set up correctly. Make sure to include the correct units if necessary.

1. In her Science class, Monica watched an insect crawl $3\frac{1}{6}$ inches in one minute. The next minute the insect crawled $2\frac{3}{4}$ inches. How far did the insect crawl in total?

$3\frac{1}{6} + 2\frac{3}{4}$

$\frac{19}{6}^{\times 2} + \frac{11}{4}^{\times 3}$

$\frac{38}{12} + \frac{33}{12}$

$= \boxed{\frac{71}{12} \text{ or } 5\frac{11}{12} \text{ inches}}$

don't forget the units

2. A carpenter bought a piece of wood 4.6 m long. Then he cut off $1.\overline{3}$ m off the end. How long is piece of wood now? Leave your answer in fraction form.

$4.6 = 4\frac{6}{10}$ or $4\frac{3}{5}$

$1.\overline{3} = 1\frac{3}{9}$ or $1\frac{1}{3}$

$4\frac{3}{5} - 1\frac{1}{3}$

$4\frac{3}{5} + -1\frac{1}{3}$

$\frac{23}{5}^{\times 3} + -\frac{4}{3}^{\times 5}$

$\frac{69}{15} + \frac{-20}{15}$

$\boxed{\frac{49}{15} \text{ or } 3\frac{4}{15} \text{ metres}}$

3. Beth poured $1\frac{2}{3}$ buckets of water into her bathtub. A few minutes later she poured another $1\frac{1}{4}$ buckets of water into the tub. If each bucket holds 2 litres of water. How many litres of water did Beth pour into the bathtub?

How many buckets?

$1\frac{2}{3} + 1\frac{1}{4}$

$\frac{5}{3}^{\times 4} + \frac{5}{4}^{\times 3}$

$\frac{20}{12} + \frac{15}{12}$

$\frac{35}{12}$

Each bucket holds 2 litres of water

$\frac{35}{12} \times 2$

$\frac{35}{\cancel{12}_{6}} \times \frac{\cancel{2}^{1}}{1}$

$= \boxed{\frac{35}{6} \text{ or } 5\frac{5}{6} \text{ litres}}$

4. A store has 6 boxes of pencils. Davey buys $1\frac{1}{3}$ boxes and Erik buys $2\frac{1}{2}$ times as many boxes as Davey. How many boxes are left at the store?

Davey buys $1\frac{1}{3}$ boxes.

Erik buys:

$1\frac{1}{3} \times 2\frac{1}{2}$

$\frac{\cancel{4}^{2}}{3} \times \frac{5}{\cancel{2}_{1}}$

$= \frac{10}{3}$ boxes.

How many left?

$6 - \frac{10}{3}$

$\frac{6}{1}^{\times 3} - \frac{10}{3}$

$\frac{18}{3} - \frac{10}{3}$

$= \boxed{\frac{8}{3} \text{ or } 2\frac{2}{3} \text{ boxes left.}}$

Assignment : Word Problems with Rational Numbers Assignment

Name:_____

Word Problems with Rational Numbers

1. Shelby skated for $6\frac{1}{2}$ hours last month. This month she skated $3\frac{2}{3}$ hours less. How long did she skate this month?

2. Yesterday I had $1.\overline{6}$ kilograms of flour in a can. Today I poured more flour into the can and now I have 3.2 kilograms of flour. As a fraction, how much flour was poured in?

3. Pam collected $3\frac{1}{4}$ boxes of bottles to recycle. Jeremy collected $2\frac{1}{2}$ times as many boxes as Pam. How many boxes did Jeremy collect?

4. A school prepared $20\frac{1}{3}$ litres of drinks for a basketball game. The players drank $9\frac{1}{2}$ litres during the first half of the game. In the second half, the players drank $1\frac{3}{5}$ less than in the first half. What is the volume of drinks left at the end?

5. Ryan bought $3\frac{1}{2}$ boxes of paper clips. Allan bought $1\frac{3}{4}$ more boxes than Ryan. Colin bought $1\frac{1}{2}$ times as many boxes as Allan. How many boxes did Colin buy?

6. Henry has $3\frac{3}{5}$ metres of rope, and Sam has a piece of rope that is $1\frac{1}{2}$ metres shorter. What is the total amount of rope that the boys have together?

7. A group of people is standing in a line at a movie theatre. Three-eights of the people were boys and one-quarter of the people were girls. How much of the group were adults?

8. Bill ran around $\frac{2}{3}$ of the school's track and Josh ran around $\frac{5}{6}$ of the track. How much further did Josh run?

9. Peter spent $\frac{1}{4}$ of his money on a drink and another $\frac{3}{5}$ on food. What fraction of Peter's money was left?

10. Mark has $1.\overline{3}$ books of stamps. Steven has $\frac{1}{2}$ as many books of stamps as Mark. How many books of stamps does Steven have?

11. A factory put in $1\frac{3}{5}$ of a case of almonds to make 6 granola bars. How much of a case of almonds is in each granola bar?

12. Brandon and his son went fishing. Brandon caught $2\frac{3}{4}$ kg of fish while his son caught $2\frac{1}{2}$ times as many kg of fish. What was the total amount of fish caught by Brandon and his son?

Answers

1) $\frac{17}{6}$ or $2\frac{5}{6}$ hours

2) $\frac{23}{15}$ or $1\frac{8}{15}$ kg

3) $\frac{65}{8}$ or $8\frac{1}{8}$ boxes

4) $\frac{44}{15}$ or $2\frac{14}{15}$ litres

5) $\frac{63}{8}$ or $7\frac{7}{8}$ boxes

6) $\frac{57}{10}$ or $5\frac{7}{10}$ metres

7) $\frac{3}{8}$ were adults

8) $\frac{1}{6}$ further

9) $\frac{3}{20}$ of his money

10) $\frac{2}{3}$ of a book

11) $\frac{4}{15}$ of a case

12) $\frac{77}{8}$ or $9\frac{5}{8}$ kgs