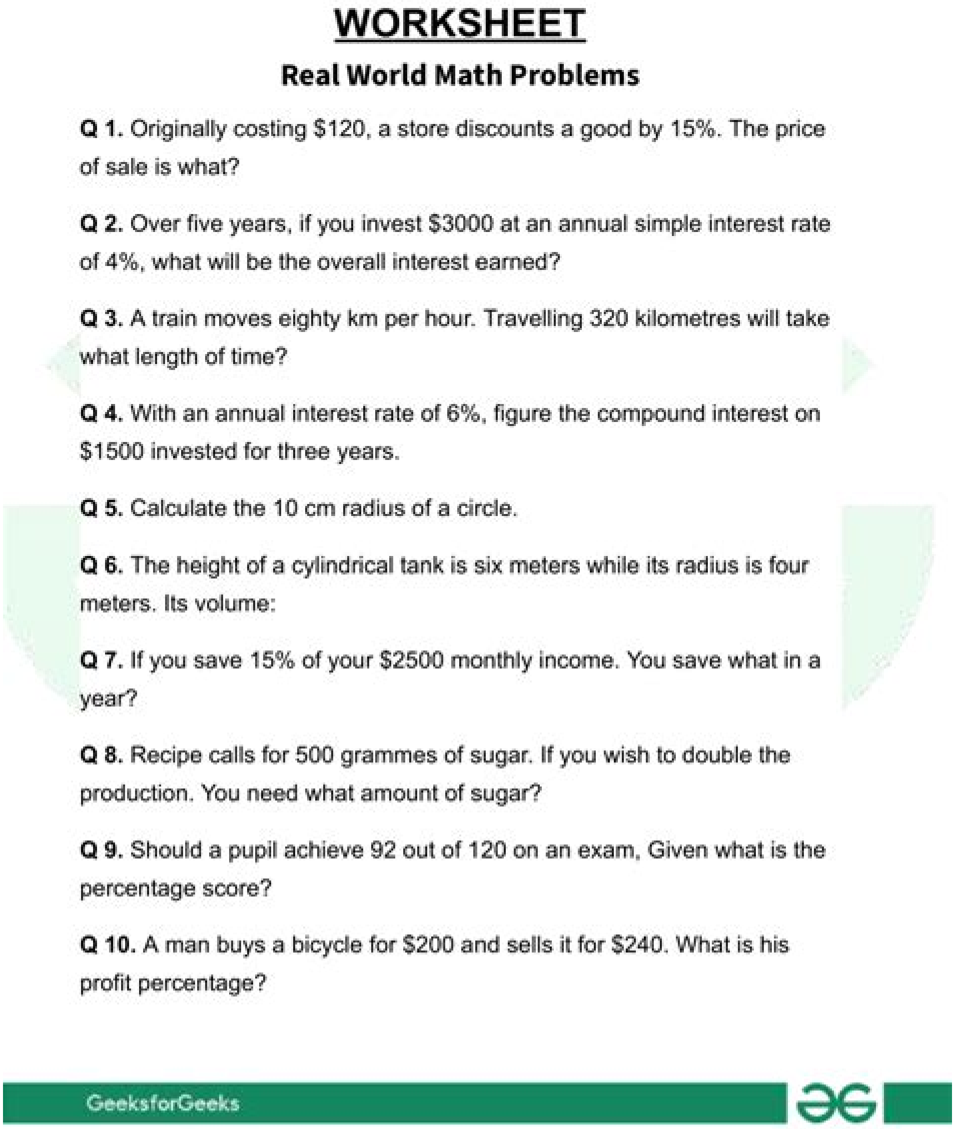
Real World Math Problems With Answers



WORKSHEET

Real World Math Problems

Q 1. Originally costing $120, a store discounts a good by 15%. The price of sale is what?

Q 2. Over five years, if you invest $3000 at an annual simple interest rate of 4%, what will be the overall interest earned?

Q 3. A train moves eighty km per hour. Travelling 320 kilometres will take what length of time?

Q 4. With an annual interest rate of 6%, figure the compound interest on $1500 invested for three years.

Q 5. Calculate the 10 cm radius of a circle.

Q 6. The height of a cylindrical tank is six meters while its radius is four meters. Its volume:

Q 7. If you save 15% of your $2500 monthly income. You save what in a year?

Q 8. Recipe calls for 500 grammes of sugar. If you wish to double the production. You need what amount of sugar?

Q 9. Should a pupil achieve 92 out of 120 on an exam, Given what is the percentage score?

Q 10. A man buys a bicycle for $200 and sells it for $240. What is his profit percentage?

GeeksforGeeks

Real world math problems with answers are an essential part of our daily lives, often manifesting in various forms that require not just theoretical knowledge but practical application. Math is not limited to classrooms and textbooks; it permeates through finance, construction, cooking, and even sports. By understanding real-world math problems, we can enhance our problem-solving skills and make informed decisions. This article explores a variety of real-world math problems, offering practical examples and their solutions.

Finance and Budgeting

1. Personal Budgeting

Creating a personal budget is a fundamental application of math in managing finances. Let's say you earn $3,000 a month and want to allocate your expenses as follows:

- Housing: 30%
- Utilities: 10%
- Food: 15%
- Savings: 20%
- Entertainment: 10%
- Other: 15%

Problem: Calculate how much you should budget for each category.

Solution:

1. Housing: 30% of $3,000
$0.30 \times 3000 = 900$

2. Utilities: 10% of $3,000
$0.10 \times 3000 = 300$

3. Food: 15% of $3,000
$0.15 \times 3000 = 450$

4. Savings: 20% of $3,000
$0.20 \times 3000 = 600$

5. Entertainment: 10% of $3,000
$0.10 \times 3000 = 300$

6. Other: 15% of $3,000
$0.15 \times 3000 = 450$

The budget breakdown is:
- Housing: $900
- Utilities: $300
- Food: $450
- Savings: $600
- Entertainment: $300
- Other: $450

2. Interest Calculation

Understanding how interest works is crucial for saving and investing money.

Problem: If you deposit $1,000 in a bank account that offers a 5% annual interest rate, how much interest will you earn in 3 years?

Solution:

Using the formula for simple interest:
$I = P \times r \times t$
where:
- I = interest
- P = principal amount ($1,000)
- r = annual interest rate (5% or 0.05)
- t = time in years (3)

Calculating the interest:
$I = 1000 \times 0.05 \times 3 = 150$

You will earn $150 in interest over 3 years.

Construction and Measurement

3. Area and Volume Calculations

In construction, calculating area and volume is vital for materials estimation.

Problem: A rectangular room measures 12 feet in length and 10 feet in width. What is the area of the room? If the room has a height of 8 feet, what is its volume?

Solution:

1. Area:
$A = length \times width$
$A = 12 \times 10 = 120$ square feet

2. Volume:
$V = length \times width \times height$
$V = 12 \times 10 \times 8 = 960$ cubic feet

The area of the room is 120 square feet, and the volume is 960 cubic feet.

4. Material Cost Estimation

When planning a construction project, estimating material costs is necessary.

Problem: If paint costs $25 per gallon and covers 350 square feet, how many gallons do you need to paint a room with an area of 120 square feet?

Solution:

1. Calculate the number of gallons needed:
$\text{Gallons needed} = \frac{\text{Area}}{\text{Coverage per gallon}}$
$\text{Gallons needed} = \frac{120}{350} \approx 0.34$ gallons

Since you can’t buy a fraction of a gallon, you will need to purchase 1 gallon of paint.

Cost for 1 gallon:
$1 \times 25 = 25$

So, you need to spend $25 on paint.

Cooking and Baking

5. Recipe Adjustments

Math plays an important role in cooking, especially when adjusting recipes.

Problem: A recipe for 4 servings requires 2 cups of rice. How much rice is needed for 10 servings?

Solution:

1. Determine the amount of rice per serving:
$\text{Rice per serving} = \frac{2}{4} = 0.5$ cups

2. Calculate for 10 servings:
$\text{Rice for 10 servings} = 0.5 \times 10 = 5$ cups

You need 5 cups of rice for 10 servings.

6. Ingredient Conversion

Understanding measurements is crucial in cooking.

Problem: If a recipe calls for 1 tablespoon of salt, how many teaspoons is that?

Solution:

Since 1 tablespoon equals 3 teaspoons:
$1 \text{ tablespoon} = 3 \text{ teaspoons}$

You need 3 teaspoons of salt.

Sports and Fitness

7. Speed and Distance

Athletes often need to calculate their speed and distance during training.

Problem: If a runner completes a 5-kilometer race in 25 minutes, what is their average speed in kilometers per hour?

Solution:

1. Convert time to hours:
$25 \text{ minutes} = \frac{25}{60} \approx 0.4167$ hours

2. Calculate speed:
$\text{Speed} = \frac{\text{Distance}}{\text{Time}} = \frac{5 \text{ km}}{0.4167 \text{ hours}} \approx 12 \text{ km/h}$

The runner’s average speed is approximately 12 km/h.

8. Heart Rate Monitoring

Monitoring heart rate during fitness activities is essential.

Problem: If your resting heart rate is 60 beats per minute and during exercise, it increases to 150 beats per minute, what is the percentage increase?

Solution:

1. Calculate the increase in heart rate:
$\text{Increase} = 150 - 60 = 90$

2. Calculate the percentage increase:
$\text{Percentage increase} = \left(\frac{90}{60}\right) \times 100 \approx 150\%$

Your heart rate increases by 150% during exercise.

Conclusion

Real world math problems with answers illustrate the significance of mathematics in everyday situations. From budgeting finances and calculating areas for construction to adjusting recipes and monitoring fitness, math is an invaluable tool. Understanding and applying mathematical concepts can help individuals make better decisions, optimize resources, and improve their overall quality of life. By practicing these real-world math problems, anyone can enhance their numerical skills and confidence in handling everyday challenges.

Frequently Asked Questions

How do you calculate the total cost of groceries if each item has a different price?

Add the price of each item together. For example, if you have items priced at $3.50, $2.75, and $4.20, the total cost would be $3.50 + $2.75 + $4.20 = $10.45.

What is the formula for determining the area of a room in square feet?

The area can be calculated by multiplying the length by the width of the room. For instance, if the room is 12 feet long and 10 feet wide, the area is 12 10 = 120 square feet.

How can I determine the percentage of a discount on a sale item?

To find the discount amount, multiply the original price by the discount percentage (as a decimal). For example, for a $50 item with a 20% discount, the discount is $50 0.20 = $10, making the sale price $50 - $10 = $40.

What is the method for calculating travel time if you know the distance and speed?

Use the formula: time = distance ÷ speed. For example, if you need to travel 150 miles at a speed of 50 miles per hour, the time taken would be 150 ÷ 50 = 3 hours.

How do you find out how much to tip at a restaurant?

A common method is to calculate 15-20% of the total bill. For example, if your bill is $60, a 20% tip would be $60 0.20 = $12, making the total $72.

What is the process to calculate the monthly payment on a loan?

Use the formula for the monthly payment: M = P[r(1 + r)^n] / [(1 + r)^n – 1], where P is the loan amount, r is the monthly interest rate, and n is the number of payments. For a $10,000 loan at 5% interest for 3 years, first convert the interest rate to a monthly rate and compute.

How do you determine how much paint is needed to cover a wall?

Calculate the area of the wall by multiplying its height by its width. Then, divide by the coverage provided by the paint. For example, if the wall is 10 feet high and 12 feet wide, the area is 120 square feet. If a gallon of paint covers 350 square feet, you would need 120 ÷ 350 ≈ 0.34 gallons.

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