

Extended Response Practice

Mathematics

Grade

7

Directions: Read each question carefully. In each problem below you must show all work to receive full credit. All work and answers must go in this booklet. You may use a calculator for all questions.

1. A group of friends went to lunch. The bill, before sales tax and tip, was \$37.50. A sales tax of 8% was added. The group then tipped 18% on the amount after the sales tax was added. What was the amount, in dollars, of the sales tax?

Show your work.

Answer \$ _____

What was the total amount the group paid, including tax and tip?

Show your work.

Answer \$ _____

2. A pine tree measured $40\frac{1}{2}$ feet tall. Over the next $7\frac{1}{2}$ years, it grew to a height of 57 feet. During the $7\frac{1}{2}$ years, what was the average yearly growth rate of the height of the tree?

Show your work. Box your answer.

3. Patel bought a model rocket kit from a catalog. The price of the kit was \$124.95. The state sales tax of 7% was added, and then a \$10 charge for shipping was added after the sales tax. What was the total amount Patel paid, including tax and shipping cost?

Show your work.

Answer \$ _____

Patel received an allowance of \$15 per week. How many weeks will it take him to purchase the kit?

Show your work.

Answer _____ weeks

4. Graham's monthly bank account statement showed the following deposits and withdrawals:

-\$25.20, \$52.75, -\$22.04, -\$8.50, \$94.11

If Graham's balance in the account was \$47.86 at the beginning of the month, what was the account balance at the end of the month?

Show your work.

Answer \$ _____

5. Kelsie sold digital cameras on her website. She bought the cameras for \$65 each and included a 60% markup to get the selling price. To the nearest dollar, what was the selling price for one camera?

Show your work.

Answer \$ _____

6. The circumference of a circle is 11π inches.
What is the area, in square inches, of the circle? Express your answer in terms of pi.

Show your work.

Answer _____ square inches

7. Convert $\frac{3}{11}$ to a decimal equivalent using long division.

Show your work.

Answer _____

8. Ms. Donaldson earns \$18.80 per hour for the first 40 hours she works in a week. She earns $1\frac{1}{2}$ times that amount per hour for each hour beyond 40 hours in a week. Last week, Ms. Donaldson worked 45.5 hours. How much money did she earn?

Show your work.

Answer \$ _____

A health insurance payment of \$34.55 was deducted from Ms. Donaldson's earnings for the week. After the insurance deduction, payroll taxes equal to 28% of the balance were deducted. What was the amount that Ms. Donaldson received?

Show your work.

Answer \$ _____

9. Mrs. Hamilton worked for a real estate agency. She sold a house for \$175,000. The agency's fee for the sale was 4% of the sale price. Mrs. Hamilton received \$4,725 of the agency's fee as her commission. What percent of the agency's fee did Mrs. Hamilton receive? Round your answer to the nearest tenth of a percent.

Show your work.

Answer _____ %

10. Mrs. Gonzales has only \$42.50 to spend at a clothing store. He wants to buy a shirt that costs \$29, including tax, and some bracelets that cost \$4.50 each, including tax.

Write an equation to determine x , the maximum number of bracelets Mr. Gonzales could buy.

Equation _____

Solve the equation to determine the number of bracelets Mr. Gonzales could buy.

Show your work.

Answer _____ bracelets

11. Harper has \$15.00 to spend at the grocery store. She is going to buy bags of fruit that cost \$4.75 each and one box of crackers that costs \$3.50.

Write and solve an inequality that models this situation and could be used to determine the **maximum** number of bags of fruits, b , Harper can buy.

Show your work.

Answer _____ bags of fruit

12. A convenience store sells two brands of orange juice. Brand A contains 8 fluid ounces and costs \$1.28. Brand B contains 12 fluid ounces and costs \$1.68.

What is the difference in cost, in dollars, per fluid ounce between the two brands of juice?

Show your work.

Answer \$ _____ per fluid ounce

13. A scientist uses a submarine to study ocean life.

- She begins at sea level, which is at an elevation of 0 feet.
- She travels straight down for 90 seconds at a speed of 3.5 feet per second.
- She then travels directly up for 30 seconds at a speed of 2.2 feet per second.

After this 120-second period, how much time, in seconds, will it take for the scientist to travel back to sea level at the submarine's maximum speed of 4.8 feet per second? Round your answer to the nearest tenth of a second.

Show your work.

Answer _____ seconds

14.

Find the value of the expression.

$$\frac{5}{(-1.5 + 9.5)} + \frac{0.4(7 + 11)}{-0.2}$$

Show your work.

15.

A museum opened at 8:00 a.m. In the first hour, 350 people purchased admission tickets. In the second hour, 20% more people purchased admission tickets than in the first hour. Each admission ticket cost \$17.50.

What was the total amount of money paid for all the tickets purchased in the first two hours?

Show your work.

16.

Mick paid \$2.94 in sales tax on an item that cost \$42.00 before tax. At that rate, how much would he pay in sales tax for an item that costs \$58.00 before tax?

Show your work.

17.

At a store, customers are randomly selected to participate in a survey. On Friday, there were 500 customers at the store. Of those, 90 were selected to participate in the survey. On Saturday, the store manager expects 700 customers in the store. If the probability of being selected to participate in the survey on Saturday is the same as it was on Friday, how many customers will be selected to participate in the survey on Saturday?

Show your work.

18.

A school club needs 300 feet of rope for a project. They have the amounts of rope listed below.

- 2 pieces of rope that are each 16 yards in length
- 1 piece of rope that is 12.5 yards in length
- 1 piece of rope that is 123.25 feet in length

How much additional rope, in feet, does the school club need in order to have enough rope for their project?

Show your work.

19.

The table below lists the masses and volumes of several pieces of the same type of metal. There is a proportional relationship between the mass and the volume of the pieces of metal.

PIECES OF METAL

Mass (grams)	Volume (cubic centimeters)
34.932	4.1
47.712	5.6
61.344	7.2
99.684	11.7

Determine the mass, in grams, of a piece of this metal that has a volume of 15.3 cubic centimeters. Round your answer to the nearest tenth of a gram.

Show your work.

20.

Hallum Hardware created flyers to advertise a sale on a certain type of carpet. A portion of the flyer is shown below.

HALLUM HARDWARE CARPET SALE	
Area (square feet)	Cost (dollars)
500	750
1,000	1,500
1,500	2,250
2,000	3,000

Guillen Floors advertises the same type of carpet at a cost of 10% less per square foot than Hallum Hardware. Determine the cost of 700 square feet of the carpet if it is bought from Guillen Floors.

Show your work.

21.

The rectangular floor of a classroom is 36 feet in length and 32 feet in width. A scale drawing of the floor has a length of 9 inches. What is the area, in square inches, of the floor in the scale drawing?

Show your work.

22.

Jim needs to rent a car. A rental company charges \$21.00 per day to rent a car and \$0.10 for every mile driven.

- He will travel 250 miles.
- He has \$115.00 to spend.

Write an inequality that can be used to determine d , the maximum number of days that Jim can rent a car.

Inequality _____

Jim believes the maximum whole number of days he can rent the car is 5. Is he correct? Why or why not?

Explain your answer.

23.

Jen's goal is to run a total of 22 miles in five days. The table below shows her log for the number of miles she ran on Monday, Tuesday, Wednesday, and Thursday.

JEN'S RUNNING LOG

Day	Distance (miles)
Monday	$4\frac{3}{4}$
Tuesday	$5\frac{1}{8}$
Wednesday	0
Thursday	$6\frac{1}{4}$
Friday	?

How many miles must Jen run on Friday to reach her goal?

Show your work.

24.

The table below shows the number of scooters sold at a store during a three-year period.

SCOOTER SALES

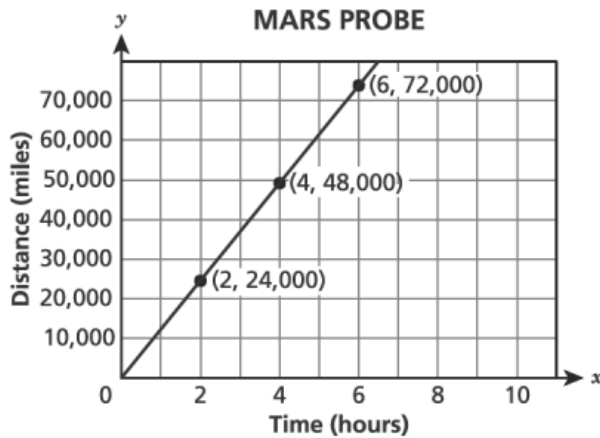
Year	Number Sold
Year 1	725
Year 2	579
Year 3	696

In Year 4, the store sold 112% of the total number of scooters sold during the previous three years combined. Determine the number of scooters sold in Year 4.

Show your work.

25.

The graph shows the relationship between x , the amount of time in hours, and y , the distance traveled in miles, by a probe before it reaches Mars.



Does the graph represent a proportional relationship? Why or why not?

Justify your answer.

Determine the number of miles the probe travels in 5.5 hours.

Show your work.