C3

Ratio, Proportion, and Percent

CHAPTER ASSIGNMENT · 22 MARKS

Name _____ Class _____ No. _____ Date _____

Answer every question in the space given. You may use your calculator unless a question says not to. Show your working, and round percents to the nearest whole percent where needed.

Practice questions from *GED® Test Prep Mathematics*, Chapter 3 (Ratio, Proportion, and Percent), for classroom use. Questions that used a picture or table in the book give its numbers in words. Where the book printed a question's answer choices as images, the choices here are Guru Jazzy's own (1.C, 1.H, 2.C, 3.F, 5.E, P2, P10, P15, and one choice each in 3.C, 6.C and P5), as are the Check yourself and Chapter quiz questions.

Lesson 1 · Ratio and proportion

1.A Write each ratio as a fraction in lowest terms.

Question	Ratio
Stan made 24 sales in 6 hours. Sales to hours?	
Carol takes home $1500 a month and spends $250 on food. Food to take-home pay?	
A toy rocket travels 180 feet in 15 seconds. Feet to seconds?	
Phil's work has 12 part-time and 18 full-time workers. Part-time to total workers?	
Juanita drove 336 miles on 14 gallons. Miles to gallons?	
A player tried 32 free throws and made 20. Made to missed?	
A class has 10 men and 14 women. Women to total students?	

1.B A survey of 600 voters found: Stothard 220 supporters, Mesa 180, Newmark 50, undecided 150. What is the ratio of Mesa's supporters to Stothard's supporters?

A	B	C	D
9:11	11:9	11:20	20:11

1.C Using the same survey, what is the ratio of undecided voters to voters who have made a decision?

A	B	C	D
1:4	1:3	3:4	3:1

1.D A team played 77 games and won 56 of them, with no ties. What is the ratio of wins to losses?

A	B	C	D
3:8	8:11	11:8	8:3

1.E Solve for the missing term in each proportion. You may use your calculator for the last row.

Proportion	x =	Proportion	x =	Proportion	x =
2/3 = x/18		3/5 = 27/x		6/5 = 3/x	
15/2 = x/8		4/$212 = 7/x		25/6 = 400/x	
7/30 = x/9		0.5/12 = 3/x		3/19 = x/114	
20/2.5 = 100/x		$5.96/2 = x/3		24/96 = 7/x	

1.F Soup is on sale at 4 cans for $0.98. To the nearest cent, how much would 5 cans cost?

A	B	C	D
$0.25	$1.23	$2.45	$4.90

1.G The Bay City Cardinals have won 5 out of 8 games. At the same rate, how many games will they have to play to win 60 games?

A	B	C	D
180	120	96	12

1.H Claudia drove 155 miles in 2.5 hours. Which proportion could be used to find how many miles (x) she can drive in 7 hours?

A	B	C	D
155/2.5 = x/7	155/2.5 = 7/x	2.5/155 = x/7	155/7 = x/2.5

Lesson 2 · Percents

2.A For each situation, write the base, the part and the rate.

Situation	Base	Part	Rate
On a test with 80 problems, Sophie got 72 right, which is 90 percent.			
The Kangs paid $2,740 down on a $13,700 car, which is 20 percent of the price.			
Zoe takes home $2000 a month and spends $500, or 25 percent, on rent.			
Rafael has 60 regular customers, which is 150 percent of the 40 he had last year.			
Misako earns $900 a week; 15 percent, $135, is withheld for taxes.			

2.B A newspaper prints these basketball standings: Fairfax 9 wins, 3 losses; Hamilton 8 wins, 4 losses; Bravo 6 wins, 6 losses; Mountain View 4 wins, 8 losses; Lincoln 3 wins, 9 losses. What percent of its games did Bravo win?

A	B	C	D
100%	75%	60%	50%

2.C Using the same standings, which proportion could be used to find what percent (x) of its games Fairfax has won?

A	B	C	D
9/3 = x/100	9/12 = x/100	3/12 = x/100	12/9 = x/100

2.D A jacket priced at $128 is on a rack marked “All items 25% off, discount taken at register.” By how much will the price be reduced?

A	B	C	D
$4	$25	$32	$96

Lesson 3 · Using the percent formula

3.A Solve. Do the first row **without** a calculator.

Problem	Answer	Problem	Answer
What is 20% of $25?		Find 90% of 200.	
What percent is 19 out of 20?		What is 125% of $48?	
240 is what percent of 120?		$52 is what percent of $650?	
$0.65 is what percent of $10.00?		Find 28% of $1300.	

3.B Find the missing element in each set. Do **not** use a calculator.

Problem	Answer	Problem	Answer
$35 is 20% of what amount?		5% of what number is 14?	
3.2 is 50% of what number?		$170 is 85% of what amount?	
$105 is 125% of what amount?		190 is 95% of what number?	
9 is 1% of what number?		What percent is 126 of 140?	
65% of $1200 is what amount?		5% of an amount is $156. What is it?	

3.C Pat called 120 customers and 72 bought a software upgrade. What percent bought it?

A	B	C	D
40%	48%	60%	72%

3.D Douglas received a 6 percent raise. His old monthly salary was $2,250. What is his monthly salary now?

A	B	C	D
$2,256	$2,385	$3,600	$13,500

3.E A Little League package was $65 and is now on sale for $45.50. What percent of the original price is the sale price?

A	B	C	D
20%	31%	44%	70%

3.F Lydia pays $3 sales tax on a $50 purchase. Which expression gives the sales tax rate?

A	B	C	D
3 × 50	50 ÷ 3	3 ÷ 50	50 − 3

3.G Kevin's payroll deductions are 30 percent of his earnings. If his deductions are $369 for two weeks, how much did he earn in that time?

A	B	C	D
$110.70	$123.00	$1,230.00	$11,070.00

3.H A city's transport budget gives 6% to equipment. If $72,000 is set aside for equipment, what is the total budget?

A	B	C	D
$432,000	$940,000	$1,200,000	$120,000,000

Lesson 4 · Percent calculator skills

4.A Solve. Use the % key on your calculator.

Problem	Answer	Problem	Answer
Find 46% of $130.		14% of what amount is $13.44?	
What is 12% of $126?		12 is what percent of 400?	
A number is 32% of 6500. What is it?		90% of what number is 63?	
Find 7% of 360.		390 is what percent of 500?	
32% of what number is 80?		$112 is what percent of $1600?	

4.B Shipping and handling is charged as follows. Orders of $20 or less: 3% of the order + $1.50. $20.01 to $50: 4% + $2.50. $50.01 to $100: 5% + $4.00. $100.01 or more: 8%. Chanel placed an $84 order. How much will she be charged for shipping and handling?

A	B	C	D
$4.20	$4.40	$8.20	$8.36

4.C Using the same chart, Jason placed a $110 order and Zola a $90 order. How much more did Jason pay in shipping and handling than Zola?

A	B	C	D
$0.30	$4.30	$4.50	$20.00

4.D In an election, 3190 of 3625 registered voters voted against a tax increase. What percent voted against it?

A	B	C	D
43%	83%	88%	98%

4.E A baseball player had 410 at bats, 108 hits, 2 home runs, 70 walks and 63 strikeouts. To the nearest percent, what percent of his at bats were strikeouts?

A	B	C	D
90%	58%	26%	15%

Lesson 5 · Simple interest

5.A Use the simple interest formula, I = prt.

Problem	Answer
Leah borrows $1500 for 2 years at 12%. Find the interest.	
Interest on a loan of $800 for 6 months at 14%?	
Dominica invests $2000 for 3 years at 7%. Interest earned?	
Interest on $600 invested for 8 years at 10%?	
Ricardo borrows $1850 for 8 months at 12%. Total paid back?	

5.B Noah borrows $8000 for 5 years at 6 percent simple interest. How much will he pay in interest?

A	B	C	D
$2400	$1040	$420	$400

5.C Caleb borrows $1500 from his aunt and pays her back in 9 months with 4 percent interest. What is the total he pays back?

A	B	C	D
$1455	$1545	$1560	$2040

5.D Charlotte needs to borrow $2400. Option A is 2½ years at 12%, option B 3 years at 10%, option C 4 years at 9%.

(a) How much more interest would she pay with option C than with option A? [1]

A	B	C	D
$108	$144	$720	$864

(b) She chooses option B but borrows $2800. What is the total she will pay back? [1]

A	B	C	D
$2830	$3240	$3556	$3640

5.E Jean borrows $1300 for 1 year 6 months at 9 percent simple interest. Which expression gives the amount she pays back?

A	B	C	D
1300 × 0.09 × 1.5	1300 + 1300 × 0.09 × 1.5	1300 + 1300 × 0.09 × 18	1300 + 1300 × 9 × 1.5

Lesson 6 · Percent of change

6.A Find each percent of change. Round to the nearest percent if needed.

Problem	Answer	Problem	Answer
Increase from 2000 to 3000		Decrease from $2.00 to $1.25	
Increase from 30 to 90		Decrease from 20 to 11	
Increase from $25 to $30		Decrease from 500 to 340	
Increase from $1.89 to $2.29		Decrease from 21 to 3	
Increase from 65 to 338		Decrease from $1550 to $1025	

6.B Justin's weekly pay rose from $280 to $448. To the nearest percent, by what percent did it increase?

A	B	C	D
38%	60%	168%	267%

6.C David bought a computer game on sale for $36. It was originally $48. What was the percent of decrease?

A	B	C	D
12%	25%	33%	75%

6.D Marc buys the L310 printer at a wholesale price of $63.00 and sells it at a retail price of $141.75. The L1430 has a retail price of $150.50 and a member's price of $105.35.

(a) What is the percent of increase from wholesale to retail for the L310? [1]

A	B	C	D
56%	78%	125%	225%

(b) What is the percent of decrease from retail to member's price for the L1430? [1]

A	B	C	D
26%	30%	43%	53%

Chapter practice questions

P1 From a yearly budget of $360,000, the Kimball Foundation spends $30,000 on office space. What is the ratio of dollars spent on office space to dollars spent on other costs?

A	B	C	D
12:1	11:1	1:11	1:12

P2 A worker can assemble 5 motors in 2 hours. Which proportion could be used to find how many hours (x) it would take to assemble 50 motors?

A	B	C	D
5/2 = x/50	5/2 = 50/x	2/5 = 50/x	5/50 = x/2

P3 Neva's car is now worth $12,000, which is 60 percent of what she paid for it. How much did she pay?

A	B	C	D
$7,200	$18,000	$19,200	$20,000

P4 At a shop, the ratio of union to nonunion workers is 7 to 3. If there are 18 nonunion workers, how many union workers are there?

A	B	C	D
21	25	42	126

P5 Camilla earned $954 in commission on $15,900 in sales. What is her rate of commission?

A	B	C	D
6%	9%	16%	60%

P6 Ford County has 40,000 acres of farmland: dairy 22,000, nursery and greenhouse 3,600, vegetables and fruits 5,200, grains 9,200. What percent of the farmland is used for grains, vegetables or fruits?

A	B	C	D
23%	36%	57%	64%

P7 A logo drawing is 4 inches wide and 5 inches long. It is enlarged, keeping the same proportions, to 12.5 inches long. How many inches wide is it now?

A	B	C	D
7.5	10	15.625	20

P8 A hospital has 184 male patients. The ratio of male to female patients is 4:3. How many female patients are there? [1]

P9 A fitness center sells everything at 20% off the original price. An upright bike's sale price is $720. What was its original price, in dollars? [1]

P10 A serving of peanut butter has 3 grams of saturated fat and 13 grams of unsaturated fat. What is the ratio of grams of saturated fat to total fat?

A	B	C	D
3/13	3/16	13/16	3/10

P11 The Tigers' ratio of wins to losses is 5 to 4. At the same rate, how many games will they win in a 72-game season?

A	B	C	D
20	40	37	52

P12 The price of a carton of computer paper fell from $25 to $20. What was the percent decrease?

A	B	C	D
80%	50%	20%	5%

P13 A roast beef sandwich has 6 grams of fat and 300 calories. If 1 gram of fat equals 9 calories, what percent of its calories come from fat?

A	B	C	D
2%	3%	6%	18%

P14 Matthew puts $2200 in a savings account for one year and six months at 8 percent simple interest. How much will he have at the end?

A	B	C	D
$2212	$2376	$2464	$2640

P15 On Sunday, 140 customers visited Leo's Bookstore and 91 made a purchase. Which expression gives the percent who did NOT make a purchase?

A	B	C	D
91 ÷ 140 × 100	(140 − 91) ÷ 140 × 100	(140 − 91) ÷ 91 × 100	140 ÷ 91 × 100

P16 A school admits 9 out of every 14 students who apply. At that rate, how many will be admitted if 420 apply? [1]

P17 In a 40-hour workweek, Marcie spends 15 hours answering telephones. What is the ratio of hours on the phone to hours doing other work? Write it as a fraction. [1]

Check yourself

1 Explain the difference between the ratio 3:5 and the ratio 5:3, using a team that won 3 games for every 5 it played. [2]

2 A recipe uses 2 cups of rice for 3 people. Write a proportion and find how much rice is needed for 12 people. Show the cross multiplication. [2]

3 48 is 40% of a number. Say which of base, part and rate is missing, then find it. [2]

4 Write the TI-30XS keys you would press to find 18% of $350, and the answer. [2]

5 Ana borrows $1200 for 18 months at 5% simple interest. Find the interest and the total she pays back. Explain what value you used for t. [3]

6 A price rises from $40 to $50, then falls back from $50 to $40. Find both percents of change, and explain why they are not the same. [3]

Chapter quiz

Q1 A pitcher strikes out 4 batters for every 1 she walks. What is the ratio of walks to strikeouts?

A	B	C	D
4:1	1:4	5:1	1:5

Q2 A team won 12 games and lost 8, with no ties. What is the ratio of games won to games played?

A	B	C	D
3:2	2:3	3:5	5:3

Q3 A map scale says 2 inches = 150 miles. How many miles do 5 inches show?

A	B	C	D
300	450	750	375

Q4 What is 25% written as a decimal?

A	B	C	D
0.25	2.5	25.0	0.025

Q5 In “a $3 tip is 15% of a $20 bill”, which number is the base?

A	B	C	D
$3	15%	$20	$23

Q6 70% of a company's 320 workers chose Plan A. How many workers chose Plan A?

A	B	C	D
96	224	250	390

Q7 18 students are 75% of a class. How many students are in the class?

A	B	C	D
24	13.5	32	93

Q8 On the TI-30XS, how do you enter the % sign after a number?

A	B	C	D
Press (twice	Hold 2nd and (together	Press 2nd, then (	Press the (−) key

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Q9 Asher borrows $2500 for 3 years at 6% simple interest. How much interest does he pay?

A	B	C	D
$150	$2950	$4500	$450

Q10 Eva invests money for 9 months. In I = prt, what value should she use for t?

A	B	C	D
0.75	9	0.9	0.09

Q11 A jacket's price drops from $120 to $90. What is the percent of decrease?

A	B	C	D
30%	25%	33%	75%

Q12 A business grows from 10 to 60 employees. What is the percent of increase?

A	B	C	D
50%	83%	600%	500%

End of assignment · Check your answers against the chapter at gurujazzy.com/subjects/ged-mathematics/chapter-3-ratio-proportion-and-percent/