

حل تجميعية أسئلة وفق الهيكل الوزاري الجديد منهج ريفيل



تم تحميل هذا الملف من موقع المناهج الإماراتية

موقع المناهج ← المناهج الإماراتية ← الصف السابع ← رياضيات ← الفصل الأول ← ملفات متنوعة ← الملف

تاريخ إضافة الملف على موقع المناهج: 09:18:38 2025-11-23

ملفات اكتب للمعلم اكتب للطالب | اختبارات الكترونية | اختبارات | حلول | عروض بوربوينت | أوراق عمل
منهج انجليزي | ملخصات وتقارير | مذكرات وبنوك | الامتحان النهائي | للمدرس

المزيد من مادة
رياضيات:

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التواصل الاجتماعي بحسب الصف السابع



صفحة المناهج
الإماراتية على
فيسبوك

الرياضيات

اللغة الانجليزية

اللغة العربية

التربية الاسلامية

المواد على تلغرام

المزيد من الملفات بحسب الصف السابع والمادة رياضيات في الفصل الأول

نموذج اختبار تجريبي وفق الهيكل الوزاري الجديد منهج بريدج

1

ملخص كامل أسئلة وفق الهيكل الوزاري الجديد منهج ريفيل

2

ملخص كامل أسئلة وفق الهيكل الوزاري الجديد منهج بريدج

3

حل مراجعة وفق كامل الهيكل الوزاري الجديد منهج ريفيل المسار العام

4

حل مراجعة وفق كامل الهيكل الوزاري الجديد منهج بريدج

5

الأسئلة الموضوعية - MCQ			
1	Find unit rates when one or both quantities are fractions	1 to 6	11

Lesson 1-1 Unit Rates Involving Ratios of Fractions

Solve each problem. Use any strategy, such as a bar diagram, double number line, ratio table, or division.

1. A truck driver drove 48 miles in 45 minutes. At this rate, how many miles can the truck driver drive in one hour? (Example 1)

$$\begin{aligned} \frac{48}{1} \div \frac{45}{60} &= \frac{48}{1} \times \frac{4}{3} \\ &= \frac{192}{3} = 64 \text{ miles per hr} \end{aligned}$$

2. Russell runs $\frac{9}{10}$ mile in 5 minutes. At this rate, how many miles can he run in one minute? (Example 1)

$$\frac{9}{10} \div 5 \Rightarrow \frac{9}{10} \times \frac{1}{5} = \frac{9}{50} \text{ mile in one min}$$

3. A small airplane flew 104 miles in 50 minutes. At this rate, how many miles can it fly in one hour? (50 minutes = $\frac{5}{6}$ hour) (Example 1)

$$\begin{aligned} 104 \div \frac{5}{6} &\Rightarrow 104 \times \frac{6}{5} \\ &= \frac{624}{5} \text{ mile per hour} \\ &= 124.5 \end{aligned}$$

4. DeAndre downloaded 8 apps onto his tablet in 12 seconds. At this rate, how many apps could he download in one minute? (12 seconds = $\frac{1}{5}$ minute) (Example 1)

$$8 \div \frac{1}{5} = 8 \times \frac{5}{1} = 40 \text{ app in 1 min}$$

5. In Lixue's garden, the green pepper plants grew 5 inches in $\frac{3}{4}$ month. At this rate, how many feet can they grow in one month? (Let 5 inches = $\frac{5}{12}$ foot) (Example 2)

$$\frac{5}{9} \div \frac{3}{4} \rightarrow \frac{5}{9} \times \frac{4}{3} = \frac{20}{27} \text{ ft every one month}$$

6. Thunder from a bolt of lightning travels $\frac{1}{10}$ mile in $\frac{1}{2}$ second. At this rate, how many miles can it travel in one second? (Example 2)

$$\frac{1}{10} \div \frac{1}{2} = \frac{1}{10} \times 2 = \frac{2}{10} = \frac{1}{5} \text{ mile in one second}$$

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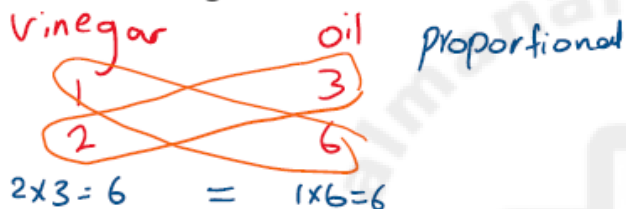
الأسئلة الموضوعية - MCQ			
2	Use models and ratio reasoning to understand how a proportional relationship can exist between quantities	1 to 7	19

Lesson 1-2 Understand Proportional Relationships

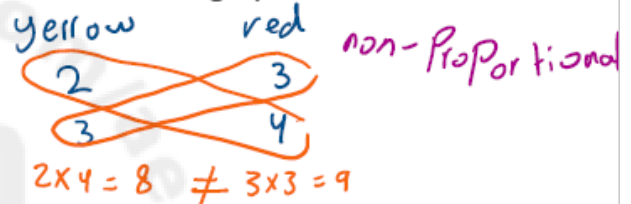
Determine if each situation represents a proportional relationship. Explain your reasoning. (Examples 1 and 2)

Determine if each situation represents a **proportional relationship**. Explain your reasoning. (Examples 1 and 2)

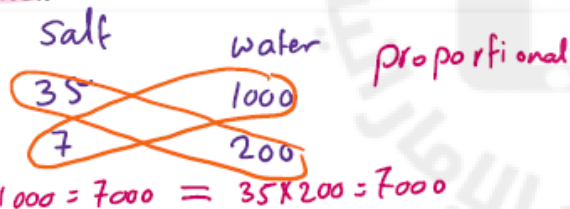
1. A salad dressing calls for 3 parts oil and 1 part vinegar. Manuela uses 2 tablespoons of vinegar and 6 tablespoons of oil to make her salad dressing.



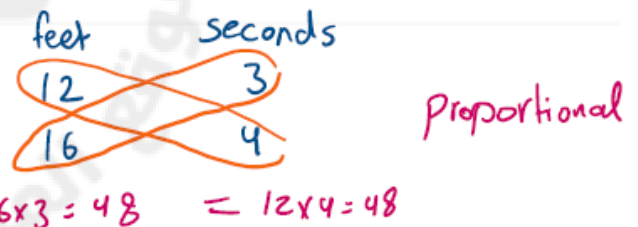
2. A specific shade of orange paint calls for 2 parts yellow and 3 parts red. Catie uses 3 cups of yellow paint and 4 cups of red paint to make orange paint.



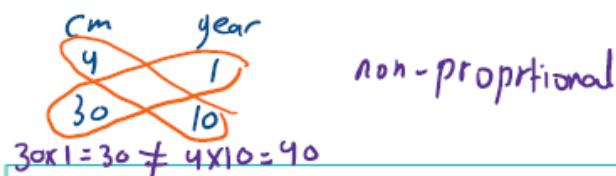
3. A saltwater solution for an aquarium calls for 35 parts salt to 1000 parts water. Tareq used 7 tablespoons of salt and 200 tablespoons of water.



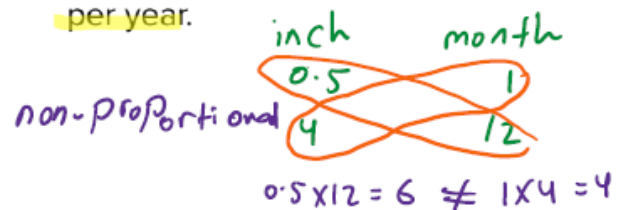
4. A conveyor belt moves at a constant rate of 12 feet in 3 seconds. A second conveyor belt moves 16 feet in 4 seconds.



5. A tectonic plate in Earth's crust moves at a constant rate of 4 centimeters per year. In a different part of the world, another tectonic plate moves at a constant rate of 30 centimeters in ten years.



6. A strand of hair grows at a constant rate of $\frac{1}{2}$ inch per month. A different strand of hair grows at a constant rate of 4 inches per year.



Student Name:

7. Multiselect One blend of garden soil is 1 part minerals, 1 part peat moss, and 2 parts compost. Select all of the mixtures below that are in a proportional relationship with this blend.

(1 : 1 : 2)

- ☒ $\frac{5}{5}$ 5 ft³ minerals, $\frac{5}{5}$ 5 ft³ peat moss, $\frac{10}{5}$ 10 ft³ compost 1:1:2
☒ $\frac{10}{10}$ 10 ft³ minerals, $\frac{15}{10}$ 15 ft³ peat moss, $\frac{15}{10}$ 15 ft³ compost
☒ $\frac{12}{12}$ 12 ft³ minerals, $\frac{12}{12}$ 12 ft³ peat moss, $\frac{24}{12}$ 24 ft³ compost 1:1:2
☒ $\frac{20}{20}$ 20 ft³ minerals, $\frac{20}{20}$ 20 ft³ peat moss, $\frac{40}{20}$ 40 ft³ compost 1:1:2
☒ $\frac{100}{100}$ 100 ft³ minerals, $\frac{100}{100}$ 100 ft³ peat moss, $\frac{200}{100}$ 200 ft³ compost = 1:1:2
☒ $\frac{50}{50}$ 50 ft³ minerals, $\frac{50}{50}$ 50 ft³ peat moss, $\frac{50}{50}$ 50 ft³ compost 1:1:1



Student Name:

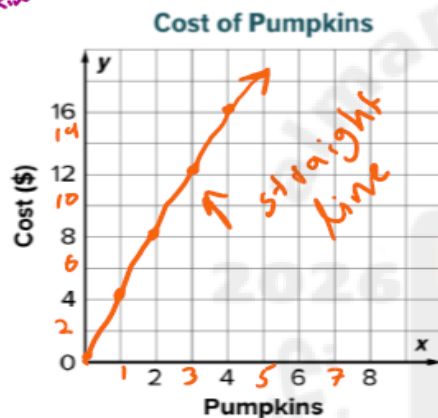
الأسئلة الموضوعية - MCQ

3	Determine if a relationship is proportional by analyzing its graph	1 to 2	39
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Lesson 1-4 Graphs of Proportional Relationships

1. The cost of pumpkins is shown in the table. Determine whether the **cost of a pumpkin** is **proportional to the number bought** by graphing the relationship on the coordinate plane. **Explain.** (Example 1) *pass through origin*

Number of Pumpkins	0	1	2	3	4
Cost (\$)	0	4	8	12	16



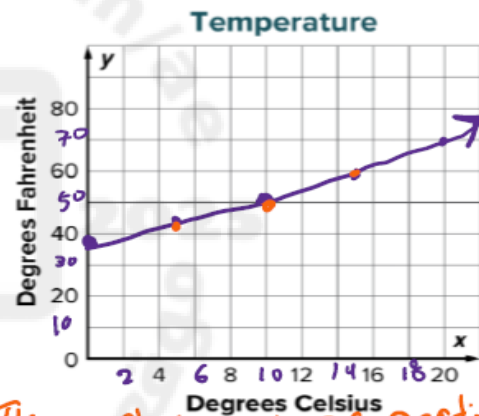
the graph is proportional

- ① pass through origin
- ② straight line

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2. The table shows temperatures in degrees Celsius and their equivalent temperatures in degrees Fahrenheit. Determine whether the **temperature in degrees Fahrenheit** is proportional to the **temperature in degrees Celsius** by graphing the relationship on the coordinate plane. **Explain.** (Example 2)

Celsius (degrees)	0	5	10	15	20
Fahrenheit (degrees)	32	41	50	59	68



The graph is not proportional

Test Practice ① it didn't pass through origin

even if you know it is not proportional you have to graph

Student Name:

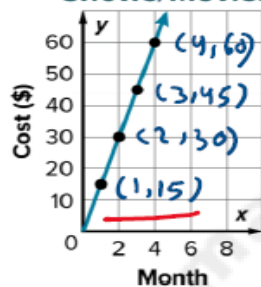
الأسئلة الموضوعية - MCQ

4	Find the constant of proportionality from graph	3 to 4	39
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Lesson 1-4 Graphs of Proportional Relationships

3. The total **cost** of online streaming is **proportional** to the number of **months**. What is the **constant of proportionality**? (Example 3)

Online Streaming of TV Shows/Movies



you can choose any point

$$k = \frac{y}{x} = \frac{30}{2} = 15$$

$$k = \frac{y}{x} = \frac{15}{1} = 15$$

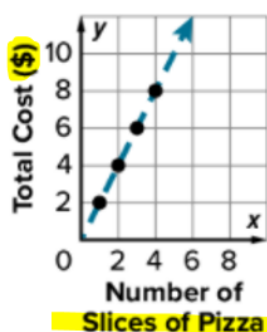
= 15 \$ per 1 month

Test Practice

P.39

4. OPEN RESPONSE The cost per slice of pizza is proportional to the number of slices as shown in the graph. (Example 4)

Pizza Slices Cost



(0 , 0) → 0 \$ for 0 slice of pizza

(1 , 2) → 2 \$ for 1 slice of pizza

Student Name:

الأسئلة الموضوعية - MCQ

5	Write equations to represent proportional relationships	3 to 6	47
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Lesson 1-5 Equations of Proportional Relationships

3. Lincoln bought 3 bottles of an energy drink for \$4.50. Write an equation relating the total cost y to the number of energy drinks bought x . (Example 2)

$$y = kx \Rightarrow k = \frac{y}{x} = \frac{4.5}{3} = 1.5$$

$y = \text{total cost}$
 $x = \# \text{ of energy drinks}$

$$y = 1.5x$$

5. Marley used 7 cups of water to make 4 loaves of French bread. What equation can be used to model the total cups of water needed y for making x loaves of French bread? How many cups of water do you need for 6 loaves of French bread? (Example 3)

$$\textcircled{1} y = kx \rightarrow k = \frac{y}{x} = \frac{7}{4} = 1.75$$

$$y = 1.75x$$

$$\textcircled{2} y = 1.75 \times 6$$

$$= 10.50 \text{ cups of water}$$

4. The total cost of renting a cotton candy machine for 4 hours is \$72. What equation can be used to model the total cost y for renting the cotton candy machine x hours? (Example 2)

$$y = \text{total cost} \quad x = \text{hours}$$

$$y = kx \rightarrow k = \frac{y}{x} = \frac{72}{4} = 18$$

$$y = 18x$$

6. Mrs. Henderson used $6\frac{3}{4}$ yards of fabric to make 3 elf costumes. What equation can be used to model the total number of yards of fabric y for x costumes? How many yards of fabric do you need for 7 elf costumes? (Example 3)

$$\textcircled{1} y = kx \rightarrow k = \frac{y}{x} = 6\frac{3}{4} \div 3$$

$$y = 2.25x$$

$$\textcircled{2} \text{ if } x = 7 \text{ find } y$$

$$y = 2.25 \times 7$$

$$= 15.75 \text{ yd.}$$

$$\frac{27}{4} \div \frac{3}{1} = \frac{27}{4} \times \frac{1}{3} = \frac{27}{12} = \frac{9}{4} = 2\frac{1}{4}$$

Student Name:

الأسئلة الموضوعية - MCQ			
6	Use proportional relationships to find the amount of tax charged for an item	1 to 5	81

Lesson 2-2 Tax

Find the total cost to the nearest cent. (Examples 1-3)

1. \$18 breakfast; 7% tax

$$\frac{7}{100} \times \frac{t}{18} \Rightarrow t = \frac{7 \times 18}{100}$$

$$t = 1.26$$

$$\text{total cost} = 18 + 1.26 = \$19.26$$

2. \$24 shirt; 6% tax

$$\frac{6}{100} \times \frac{t}{24} \Rightarrow t = \frac{6 \times 24}{100}$$

$$t = 1.44$$

$$\text{total cost} = 24 + 1.44 = \$25.44$$

3. \$49.95 pair of shoes; 5% tax

$$\frac{5}{100} \times \frac{t}{49.95} \Rightarrow t = \frac{5 \times 49.95}{100}$$

$$t = 2.50$$

$$\text{total cost} = 49.95 + 2.50 = 52.45$$

4. Emily wants to buy new boots that cost \$68.

The sales tax rate in her city is $5\frac{1}{2}\%$. What is the total cost for the boots? (Example 1)

$$\frac{5.5}{100} \times \frac{t}{68} \Rightarrow t = \frac{5.5 \times 68}{100}$$

$$t = 3.74$$

$$\text{total cost} = 68 + 3.74 = \$71.74$$

5. Jack wants to buy a coat that costs \$74.95.

The sales tax rate in his city is $6\frac{1}{2}\%$. What is the total cost for the coat? (Example 1)

$$\frac{6.5}{100} \times \frac{t}{74.95} \Rightarrow t = \frac{6.5 \times 74.95}{100}$$

$$t = 4.87$$

$$\text{total cost} = 74.95 + 4.87 = \$79.82$$

Student Name:

الأسئلة الموضوعية - MCQ

7	Use proportional relationships to find the amount to pay for a tip and the amount of markup on items	11 to 14	90
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Lesson 2-3 Tips and Markups

Apply

11. Louise bought a frame and canvas online for \$125. Then she bought the supplies shown in the table and paid a 7% sales tax on these supplies only. She took the amount that she spent on the canvas, frame, and supplies, and marked up the price by 115%. How much did she charge for her painting? Round to the nearest cent.

Item	Cost (\$)
Brushes	12.50
Paint	19.50

$$125 + 34.24 = 159.24$$

Markup 115%

$$\frac{115}{100} = \frac{M}{159.24}$$

$$M = 183.126$$

$$\frac{159.24}{342.366} \approx 342.37 \$$$

$$\frac{7}{100} = \frac{t}{32}$$

$$t = 2.24$$

$$\frac{32}{34.24}$$

P.90

12. Brendan has \$65 worth of balloons and flowers delivered to his mother. He pays the bill plus an 8.5% sales tax and an 18% tip on the total cost including tax. He also pays a \$10 delivery fee that is charged after the tax and tip. How much change does he receive if he pays with two \$50 bills? Round to the nearest cent.

Tax

$$\frac{8.5}{100} = \frac{t}{65}$$

$$t = 5.525 + 65$$

$$= 70.525$$

Tips

$$\frac{18}{100} = \frac{\text{tips}}{70.525}$$

$$\text{tips} = 12.69 + 70.525$$

$$= 83.215$$

Delivery

$$83.215 + 10$$

$$= 93.215 \approx 93.22$$

Change

$$100 - 93.22$$

$$= 6.78 \$$$

13. Toru takes his dog to be groomed. The fee to groom the dog is \$70 plus a 10% tip. Is \$80 enough to pay for the service and tip? Explain your reasoning.

Tips

$$\frac{10}{100} = \frac{t}{70}$$

$$t = 7 \$ + 70$$

$$= 77$$

Yes ,
77 is less than 80

14. **MP Use a Counterexample** Determine if the following statement is true or false. If false, provide a counterexample.

P.90 It is impossible to increase the cost of an item by less than 1%.

False ,

Example:

An item cost 30 \$ and I need to Markup the item by 0.2 %

$$\frac{0.2}{100} = \frac{M}{30}$$

$$M = 6 + 30 = 36$$

Student Name:

الأسئلة الموضوعية - MCQ			
8	Use proportional relationships to find the amount of discount or markdown	1 to 9	97

Lesson 2-4 Discounts

Find the sale price to the nearest cent. Use any strategy. (Example 1)

1. \$140 coat; 10% discount

$$\frac{10}{100} \times \frac{d}{140} \Rightarrow d = \frac{10 \times 140}{100} = 14$$

$$\text{Sale price} = 140 - 14 = \$126$$

2. \$80 boots; 25% discount

$$\frac{25}{100} = \frac{d}{80}$$

$$d = 25 \times 80 \\ = 2000 \div 100 \\ = 20$$

Sale price :

$$80 - 20 \\ = 60 \$$$

3. \$325 tent; 15% discount

$$\frac{15}{100} = \frac{d}{325}$$

$$d = 15 \times 325 \\ = 4875 \div 100 \\ = 48.75$$

Sale price :

$$325.00 \\ - 48.75 \\ \hline 276.25 \$$$

4. A toy store is having a sale. A video game system has an original price of \$99. It is on sale for 40% off the original price. Find the sale price of the game system. Round to the nearest cent. (Example 1)

$$\frac{40}{100} = \frac{d}{99}$$

$$d = 40 \times 99 = 3960 \div 100 \\ = 39.60$$

$$\begin{array}{r} 99.00 \\ - 39.60 \\ \hline 59.40 \$ \end{array}$$

5. A yearly coffee club subscription costs \$65. Avery received an offer for 62% off the subscription cost. What is the sale price of the subscription? Round to the nearest cent. (Example 1)

$$\frac{62}{100} = \frac{d}{65}$$

$$d = 62 \times 65 = 4030 \div 100 \\ = 40.30$$

$$\begin{array}{r} 65.00 \\ - 40.30 \\ \hline 24.70 \$ \end{array}$$

6. During a clearance sale at a sporting goods store, skateboards were marked down 30%. On Saturday, an additional 25% was taken off already reduced prices of skateboards. If a skateboard originally cost \$119.50, what was the final price after all discounts had been taken? Round to the nearest cent.

(Example 2)

1st discount 30% on \$119.50

$$\frac{30}{100} \times \frac{d}{119.50} \Rightarrow d = \frac{30 \times 119.50}{100}$$

$$= \$35.85$$

$$\text{sale price} = 119.50 - 35.85 \\ = \$83.65$$

2nd discount 25% on \$83.65

$$\frac{25}{100} \times \frac{d}{83.65} \Rightarrow d = \frac{25 \times 83.65}{100}$$

$$= \$20.91$$

$$\text{Sale price} = 83.65 - 20.91 \\ = \$62.74$$

7. At an electronics store, a smart phone is on sale for 35% off the original price of \$679. If you use the store credit card, you can receive an additional 15% off the sale price. What is the final price of the smart phone if you use the store credit card? Round to the nearest cent. (Example 2)

1st discount = 35% on \$679

$$\frac{35}{100} = \frac{d}{679} = \frac{35 \times 679}{100} \\ = 237.65$$

$$\text{Sale price} = 679 - 237.65 \\ = \$441.35$$

2nd discount 15% on \$441.35

$$\frac{15}{100} \times \frac{d}{441.35} = \frac{15 \times 441.35}{100} \\ = \$66.20$$

$$\text{Sale price} = 441.35 - 66.20 \\ = \$375.15$$

8. Gary had a 40% discount for new tires. The sale price of a tire was \$96.25. What was the original price of the tire? Round to the nearest cent. (Example 3)

$$\text{discount \%} = 100\% - 40\% = 60\%$$

$$\frac{60}{100} \times \frac{96.25}{\text{original}} \Rightarrow \frac{96.25 \times 100}{60}$$

$$= 160.4$$

$$\begin{array}{r} 160.4 \\ 60 \overline{) 9625} \\ \underline{60} \\ 362 \\ \underline{360} \\ 25 \\ \underline{240} \\ 10 \end{array}$$

9. A swimsuit is on sale for \$45.50. If the sale price is discounted 5% from the original price, what was the original price? Round to the nearest cent. (Example 3)

$$\text{discount \%} = 100\% - 5\% = 95\%$$

$$\frac{95}{100} \times \frac{45.50}{\text{original}} \Rightarrow \frac{100 \times 45.50}{95} \\ = 47.894 \\ \approx 47.89 \$$$

Student Name:

الأسئلة الموضوعية - MCQ

9	Use the simple interest formula to find the amount of interest earned for a given principal, at a given interest rate, for a given period of time	1 to 7	105
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Lesson 2-5 Interest

Find the simple interest earned, to the nearest cent, for each principal, interest rate, and time. (Example 1)

↳ must be in years.

$$I = prt$$

1. \$530, 6%, 1 year

$$I = prt$$

$$530 \times \frac{6}{100} \times 1$$

$$= \frac{318}{10} = \$31.8$$

2. \$1,200, 3.5%, 2 years

$$I = prt$$

$$1200 \times \frac{3.5}{100} \times 2$$

$$= \$84$$

3. \$750, 7%, 3 years

$$I = prt$$

$$750 \times \frac{7}{100} \times 3$$

$$= \$157.5$$

$$\begin{array}{r} 21 \\ 75 \\ \hline 105 \\ 1470 \\ \hline 1575 \div 10 \end{array}$$

4. Elena's father put \$460 into a savings account for her. The account pays 2.5% simple interest each year. If he neither adds nor withdraws money from the account, how much interest will the account earn after 4 years? Round to the nearest cent. (Example 1)

$$I = prt$$

$$460 \times \frac{2.5}{100} \times 4$$

$$\frac{460}{10} = \$46$$

$$\begin{array}{r} 46 \\ \times 4 \\ \hline 184 \\ \times 25 \\ \hline 1150 \\ 3680 \\ \hline 4690 \end{array}$$

5. Ethan put \$1,250 into a savings account. The account pays 4.5% simple interest on an annual basis. If he does not add or withdraw money from the account, how much interest will he earn after 2 years? Round to the nearest cent. (Example 1)

$$I = prt$$

$$1250 \times \frac{4.5}{100} \times 2$$

$$= \$112.5$$

$$\begin{array}{r} 24 \\ 125 \\ \hline 9 \\ \hline 1125 \div 10 \\ = \$112.5 \end{array}$$

6. Marc deposits \$840 into a savings account. The account pays 2% simple interest on an annual basis. If he does not add or withdraw money from the account, how much interest will he earn after 6 months? Round to the nearest cent. (Example 2)

$$I = prt \quad \rightarrow \quad t = \frac{6 \text{ months}}{12}$$

convert to years

$$t = \frac{1}{2} \text{ year}$$

$$840 \times \frac{2}{100} \times \frac{1}{2}$$

$$= \$8.4$$

7. Nina's grandmother deposits \$3,000 into a savings account for her. The account pays 5.5% simple interest on an annual basis. If she does not add or withdraw money from the account, how much interest will she earn after 21 months? Round to the nearest cent. (Example 2)

$$I = prt$$

$$t = \frac{21 \text{ months}}{12 \div 3} = \frac{7}{4} = 1.75 \text{ years}$$

$$3000 \times \frac{5.5}{100} \times 1.75$$

$$= \$288.75$$

Student Name:

الأسئلة الموضوعية - MCQ

10	Use proportional relationships to find the amount of commission earned on sales and the amount of fees for certain services	1 to 6	113
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Lesson 2-6 Commission and Fees

Solve each problem. Use any strategy, such as a bar diagram, ratio table, or division.

1. Mrs. Hollern works in a jewelry store and earns an 8.5% commission on every piece of jewelry she sells. How much commission would she earn for selling a necklace that costs \$4,600? (Example 1)

$$\frac{85}{100} = \frac{C}{4600}$$

$$85 \times 4600 = 391000 \div 100$$

$$= 3910 \$$$

3. Chase wants to earn at least \$900 this month in commission. What is the minimum amount he needs to sell in order to earn \$900 if he earns a 3.3% commission on everything he sells? Round to the nearest dollar. (Example 2)

$$\frac{3.3}{100} = \frac{900}{\text{Original}}$$

$$100 \times 900 = 90000 \div 3.3$$

$$= 27272.72$$

$$\approx 27273 \$$$

5. Mrs. Jackson needs to earn \$3,000 a month. How much does she need to sell if she earns 15% commission on everything she sells? (Example 2)

$$\frac{15}{100} = \frac{3000}{\text{Original}}$$

$$100 \times 3000 = 300000 \div 15$$

$$= 20000 \$$$

2. Booker's father sells computer software and earns a 4.25% commission on every software package he sells. How much commission would he earn on a software package that sold for \$15,725? Round to the nearest cent. (Example 1)

$$\frac{4.25}{100} = \frac{C}{15725}$$

$$4.25 \times 15725 = 66831.25 \div 100$$

$$= 668.31 \$$$

4. Sophia needs to earn at least \$1,800 each month to cover her living expenses. What is the minimum amount she needs to sell in order to earn at least \$1,800 if she earns a 10.75% commission on everything she sells? Round to the nearest dollar. (Example 2)

$$\frac{10.75}{100} = \frac{1800}{\text{Original}}$$

$$100 \times 1800 = 180000 \div 10.75$$

$$= 16744.18$$

$$\approx 16744 \$$$

6. Raymond purchases concert tickets online for \$43.50. There is a 3% processing fee. What is the total cost of the tickets? Round to the nearest cent. (Example 3)

$$\textcircled{1} \quad \frac{3}{100} = \frac{F}{43.50}$$

$$3 \times 43.5 = 130.5 \div 100$$

$$= 1.305 \approx 1.31 \$$$

$$\textcircled{2} \quad \begin{array}{r} 43.50 \\ + 1.31 \\ \hline 44.81 \end{array} \$$$

Student Name:

الأسئلة الموضوعية - MCQ

11	Use different methods, including algebra tiles, number lines, or absolute value, to add integers	1 to 8	137
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Lesson 3-1 Add Integers

Add. (Examples 1, 4, and 6)

1. $-3 + (-8)$ *same sign (Add)*
 $= -11$

2. $-11 + (-13)$ *same sign (Add)*
 -24

3. $9 + (-35)$ *different sign (Subtract)*
 -26

4. $-28 + 14$ *different sign (Subtract)*
 -14

5. $-22 + (-10) + 15$
 $-32 + 15$
 $= -17$

6. $18 + (-12) + 5$
 $23 + (-12)$
 $= 11$

7. Roger **owes** his father \$15. He **borrow**s another \$25 from him. What **integer** represents the balance that he owes his father? (Example 2)

$$-15 + (-25) = -40$$

(same sign → add)

8. A football team **lost** 14 yards on their first play then **lost** another 7 yards on the next play. What **integer** represents the **total** change in yards for the two plays? (Example 2)

$$-14 + (-7) = -21$$

same sign (add)

Student Name:

الأسئلة الموضوعية - MCQ

12	Use different methods, including algebra tiles, number lines, or the additive inverse, to subtract integers	1 to 9	147
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Lesson 3-2

Subtract Integers

USE

KEEP, CHANGE,
OPPOSITE

Subtract. (Examples 1 and 2) *Keep → Change → opposite*

1. $9 - (-2)$ **11**

$$9 + 2 = 11$$

2. $-20 - 10$ **-30**

$$-20 + -10 = -30$$

3. $13 - (-63)$ **76**

$$13 + 63 = 76$$

4. $28 - 14$ **14**

$$28 + -14 = 14$$

5. $-10 - 0$ **-10**

$$-10 + 0 = -10$$

6. $-33 - 33$ **-66**

$$-33 + -33 = -66$$

7. $-18 - (-12)$ **-6**

$$-18 + 12 = -6$$

8. $-28 - (-13)$ **-15**

$$-28 + 13 = -15$$

9. $-18 - (-40)$ **22**

$$-18 + 40 = 22$$

Student Name:

MCQ - الأسئلة الموضوعية

13	Use number lines and mathematical properties to multiply integers	1 to 9	157
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Lesson 3-3

Multiply Integers

Multiply. (Examples 1, 3, and 5)

$$1. 4(-7) \\ -28$$

$$2. -14(5) \\ -70$$

$$3. 9(-12) \\ -108$$

$$4. +6(+8) \\ 48$$

$$5. +10(+10) \\ 100$$

$$6. +11(+13) \\ 143$$

$$7. 7(-5)(4) \\ \underline{-35 \times 4} \\ = -140$$

$$8. (-8)(-7)(3) \\ \underline{56 \times 3} \\ 168$$

$$9. -2(-12)(-8) \\ \underline{24 \times -8} \\ = -192$$

Student Name:

الأسئلة الموضوعية - MCQ

14	Use the order of integer operations to evaluate expressions	1 to 6	169
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Lesson 3-5 Apply Integer Operations

()	$\sqrt{x} x^2$	$\times$ OR $\div$	$+$ OR $-$		
Parentheses	Exponents	Multiply	Divide	Add	Subtract
P	E	M	D	A	S

Evaluate each expression.

$$\begin{aligned} 1. & -5(6) + (-9) \\ & -30 + (-9) \\ & = -39 \end{aligned}$$

$$\begin{aligned} 2. & \frac{-36}{9} + (-7) \\ & = (-4) + (-7) \\ & = -11 \end{aligned}$$

$$\begin{aligned} 3. & -4(-8) + (-10) \\ & = +32 + (-10) \\ & = 22 \end{aligned}$$

$$\begin{aligned} 4. & 2(-5)(-6) - (-12) \\ & = -10 \times -6 - -12 \\ & = 60 + 12 \\ & = 72 \end{aligned}$$

$$\begin{aligned} 5. & 10(-3)(4) - (-15) \\ & = -30 \times 4 - -15 \\ & = -120 + 15 \\ & = -105 \end{aligned}$$

$$\begin{aligned} 6. & 2\left(\frac{-80}{4}\right) - 14 \\ & = 2 \times -20 - 14 \\ & = -40 - 14 \\ & = -54 \end{aligned}$$

Student Name:

الأسئلة الموضوعية - MCQ		
15	Convert fractions to decimal equivalents using division	1 to 12
		183

Lesson 4-1

Rational Numbers

Write each fraction as a decimal. Determine if the decimal is a terminating decimal.

(Examples 1 and 2)

$$\begin{aligned} 2 \times 5 &= 10 & 2 \times 50 &= 100 \\ 4 \times 25 &= 100 & 5 \times 20 &= 100 \end{aligned}$$

1. $\frac{5}{8} \times \frac{125}{125}$

$$\frac{625}{1000} = 0.625$$

Terminating

2. $-\frac{3}{4}$

$$= -0.75$$

Terminating

3. $\frac{2}{9}$

$$= 0.\overline{2}$$

not terminating

$$\begin{array}{r} 0.22\ldots \\ 9 \overline{) 20} \\ \underline{18} \\ 20 \end{array}$$

4. $-\frac{5}{6}$

$$= 0.8\overline{3}$$

not terminating

5. $-\frac{4}{5} \times \frac{2}{2}$

$$= -\frac{8}{10} = -0.8$$

Terminating

6. $\frac{23}{50} \times \frac{2}{2}$

$$\frac{46}{100} = 0.46$$

Terminating

7. $-\frac{9}{22}$

$$= 0.40\overline{9}$$

not terminating

8. $\frac{17}{24}$

$$= 0.708\overline{3}$$

not terminating

$$\begin{array}{r} 0.70833 \\ 24 \overline{) 170000} \\ \underline{168} \\ 200 \\ \underline{192} \\ 800 \\ \underline{720} \\ 800 \end{array}$$

9. $-\frac{1}{33}$

$$= -0.0\overline{3}$$

not terminating

$$\begin{array}{r} 0.0303 \\ 33 \overline{) 10000} \\ \underline{99} \\ 100 \\ \underline{99} \end{array}$$

10. $-\frac{11}{40} \times \frac{25}{25}$

$$= -\frac{275}{1000} = -0.275$$

Terminating

11. $\frac{7}{32}$

$$0.21875$$

Terminating

$$\begin{array}{r} 0.21875 \\ 32 \overline{) 700000} \\ \underline{64} \\ 60 \\ \underline{32} \\ 2800 \\ \underline{2560} \\ 2400 \\ \underline{2240} \\ 1600 \\ \underline{1600} \\ 0000 \end{array}$$

12. $-\frac{3}{7}$

$$= -0.428571$$

not terminating

* please review the slides for long division

$$\begin{array}{r} 0.4285714 \\ 7 \overline{) 3000000} \\ \underline{28} \\ 200 \\ \underline{140} \\ 6000 \\ \underline{5600} \\ 4000 \\ \underline{3500} \\ 5000 \\ \underline{4900} \\ 1000 \\ \underline{700} \\ 3000 \\ \underline{2800} \\ 2000 \end{array}$$

Student Name:

الأسئلة الموضوعية - MCQ		
16	Find the additive inverse of a rational number	1 to 6
		195

Lesson 4-2

Add Rational Numbers

OPPOSITE المعكوس

Find the additive inverse of each rational number.

1. $-\frac{1}{2}$

$\frac{1}{2}$

2. 0.25

-0.25

3. $\frac{9}{10}$

$-\frac{9}{10}$

4. -0.4

0.4

5

Quinn earned \$24.50 dog-sitting and \$12.70 for recycling cans. Find the total amount he earned and describe a situation in which Quinn ends the week with zero dollars. (Example 2)

$$24.50 + 12.70 = 37.20 \$$$

Additive inverse = $-37.20 \$$

Situation : Quinn spent 37.20\$

$$\begin{array}{r} 24.50 \\ + 12.70 \\ \hline 37.20 \end{array}$$

6

Rachel spent \$3.89 on a magazine and \$4.86 on a smoothie. Find the total amount she spent and describe a situation in which Rachel ends the day with zero dollars. (Example 2)

$$-3.89 + -4.86 = -8.75 \$$$

Additive inverse = 8.75

Situation : Rachel got 8.75 \$

$$\begin{array}{r} 3.89 \\ + 4.86 \\ \hline 8.75 \end{array}$$

Student Name:

الأسئلة الموضوعية - MCQ		
17	Add rational numbers	7 to 14
		195

Lesson 4-2

Add Rational Numbers

Add. Write in simplest form. (Examples 3-6)

7. $3\frac{5}{6} + (-1\frac{1}{6})$

subtract $\rightarrow \oplus \frac{23}{6} + \ominus \frac{7}{6} = \frac{16}{6} = \frac{8}{3} = 2\frac{2}{3}$

10. $2\frac{1}{2} + (-\frac{1}{3})$

$3 \times \frac{5}{6} + \frac{-1 \times 2}{3 \times 2} = \frac{15}{6} + (\ominus \frac{2}{6})$ subtract

$\frac{13}{6} = 2\frac{1}{6}$

13. $-1\frac{1}{4} + 0.75 + 0.45$

$\ominus 1.25 + \oplus 1.2$ subtract

$= -0.05$

$$\begin{array}{r} 0.75 \\ + 0.45 \\ \hline 1.20 \end{array}$$

$$\begin{array}{r} -1.25 \\ - 1.20 \\ \hline 0.05 \end{array}$$

8. $-13\frac{1}{4} + 4\frac{3}{4}$

subtract $\ominus \frac{53}{4} + \oplus \frac{19}{4} = \frac{-34}{4} = \frac{-17}{2} = -8\frac{1}{2}$

11. $-3.7 + \frac{1}{4}$

$-3.7 + 0.25$

$\begin{array}{r} 3.70 \\ - 0.25 \\ \hline 3.45 \end{array}$ $= -3.45$

$\oplus + \oplus = \oplus$ (Add)
 $\ominus + \ominus = \ominus$ (Add)
 $\ominus + \oplus = \ominus$ (Subtract)
 $\oplus + \ominus = \oplus$ (Subtract)

9. $-\frac{2}{3} + 2\frac{3}{8}$

subtract $8 \times \frac{-2}{3} + \frac{19 \times 3}{8 \times 3} = \frac{-16}{24} + \frac{57}{24}$

$\frac{41}{24} = 1\frac{17}{24}$

12. $\frac{1}{3} + 4.1$

$\rightarrow \frac{10 \times 1}{10 \times 3} + \frac{41 \times 3}{10 \times 3}$

$= \frac{10}{30} + \frac{123}{30} = \frac{133}{30} = 4\frac{13}{30}$

14. $-0.25 + 3\frac{1}{6} + 2\frac{1}{12}$

$-\frac{1 \times 3}{4 \times 3} + \frac{19 \times 2}{6 \times 2} + \frac{25}{12}$

$\frac{-3 + 38 + 25}{12} = \frac{60}{12} = 5$

Student Name:

الأسئلة الموضوعية - MCQ			
18	Use the rules for multiplying integers to multiply rational numbers	1 to 6	211

Lesson 4-4 Multiply Rational Numbers

Multiply. Write the product in simplest form.

$$1. \cancel{\frac{1}{2}} \left(\cancel{\frac{4}{5}} \right) \\ = \frac{2}{5}$$

$$2. \cancel{\frac{3}{8}} \left(\cancel{\frac{8}{9}} \right) \\ = \frac{1}{3}$$

$$3. \cancel{\frac{1}{4}} \left(\cancel{\frac{4}{5}} \right) \\ = \frac{1}{5}$$

$$4. 1\frac{4}{9} \left(-2\frac{4}{7} \right) \\ \frac{13}{9} \times \frac{-18}{7} \\ = \frac{-26}{7} = -3\frac{5}{7}$$

$$5. 1\frac{1}{10} \left(-6\frac{7}{8} \right) \\ = \frac{11}{10} \times \frac{-55}{8} \\ = \frac{-121}{16} = -7\frac{9}{16}$$

$$6. 5\frac{1}{4} \left(-4\frac{2}{3} \right) \\ -\frac{21}{4} \times \frac{-14}{3} \\ = \frac{49}{2} = 24\frac{1}{2}$$

Student Name:

الأسئلة الموضوعية - MCQ			
19	Use the rules for dividing integers to divide rational numbers	1 to 12	219

Lesson 4-5 Divide Rational Numbers

Divide. Write your answer in simplest fraction form.

1. $-\frac{6}{7} \div \frac{3}{14}$

$$= -\frac{6}{7} \times \frac{14}{3}$$

$$= -\frac{2 \times 2}{1 \times 1}$$

$$= -4$$

2. $-\frac{3}{4} \div \left(-\frac{1}{2}\right)$

$$= \frac{3}{4} \times \frac{2}{1}$$

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

$$= \frac{3}{2}$$

$$= 1\frac{1}{2}$$

3. $\frac{2}{3} \div \left(-\frac{4}{9}\right)$

$$= \frac{2}{3} \times -\frac{9}{4}$$

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

$$= -\frac{3}{2}$$

$$= -1\frac{1}{2}$$

4. $-\frac{4}{7} \div \frac{8}{9}$

$$= -\frac{4}{7} \times \frac{9}{8}$$

$$= \frac{-1 \times 9}{7 \times 2}$$

$$= -\frac{9}{14}$$

5. $-\frac{3}{5} \div \left(-\frac{3}{4}\right)$

$$= \frac{3}{5} \times \frac{4}{3}$$

$$= \frac{1 \times 4}{5 \times 1}$$

$$= \frac{4}{5}$$

6. $-5\frac{3}{4} \div \left(2\frac{1}{16}\right)$

$$= -\frac{23}{4} \div \frac{33}{16}$$

$$= -\frac{23}{4} \times \frac{16}{33}$$

$$= \frac{-92}{33} = 2\frac{26}{33}$$

Student Name:

7. $7\frac{1}{2} \div \left(-2\frac{5}{6}\right)$

$$\frac{15}{2} \div -\frac{17}{6}$$

$$\frac{15}{2} \times -\frac{6}{17}$$

$$= -\frac{45}{17}$$

$$= -2\frac{11}{17}$$

8. $3\frac{4}{9} \div \left(-2\frac{1}{3}\right)$

$$\frac{31}{9} \div -\frac{7}{3}$$

$$\frac{31}{9} \times -\frac{3}{7}$$

$$= -\frac{31}{21}$$

$$= -1\frac{10}{21}$$

9. $2\frac{2}{3} \div \left(-1\frac{1}{6}\right)$

$$\frac{8}{3} \div -\frac{7}{6}$$

$$\frac{8}{3} \times -\frac{6}{7}$$

$$= -\frac{16}{7}$$

$$= -2\frac{2}{7}$$

10. $-3\frac{2}{5} \div \left(-5\frac{1}{10}\right)$

$$-\frac{17}{5} \div \left(-\frac{51}{10}\right)$$

$$= -\frac{17}{5} \times -\frac{10}{51}$$

$$= \frac{2}{3}$$

11. $-5\frac{1}{4} \div \frac{7}{8}$

$$= -\frac{21}{4} \div \frac{7}{8}$$

$$= -\frac{21}{4} \times \frac{8}{7}$$

$$= -6$$

12. $8\frac{1}{3} \div \left(-\frac{5}{9}\right)$

$$= \frac{25}{3} \div \left(-\frac{5}{9}\right)$$

$$= \frac{25}{3} \times -\frac{9}{5}$$

$$= -15$$

Student Name:

الأسئلة الموضوعية - MCQ

20	Add, subtract, multiply, and divide rational numbers	1 to 6	225
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Lesson 4-6 Apply Rational Number Operations

Evaluate each expression if $a = \frac{7}{8}$, $b = -\frac{7}{16}$, $c = 0.8$, $d = \frac{1}{4}$.

1. $\frac{a}{b} - c + d$

$$\left(\frac{7}{8} \div \frac{7}{16}\right) - 0.8 + \frac{1}{4}$$

$$\left(\frac{7}{8} \times \frac{16}{7}\right) - 0.8 + 0.25$$

$$-2 - 0.8 + 0.25$$

$$-2 + -0.8 + 0.25 = -2.8 + 0.25 = -2.55$$

Subtract

2. $a + b + cd$

$$\frac{7}{8} + \left(-\frac{7}{16}\right) + \frac{4}{5} \times \frac{1}{4}$$

$$= \frac{14}{16} + \left(-\frac{7}{16}\right) + \frac{1}{5}$$

$$= \frac{14}{16} + \left(-\frac{7}{16}\right) + \frac{1}{5}$$

$$= \frac{7 \times 5}{16 \times 5} + \frac{1 \times 16}{5 \times 16}$$

$$= \frac{35}{80} + \frac{16}{80} = \frac{51}{80}$$

3. $c - a + \frac{b}{d}$

$$\frac{4}{5} - \frac{7}{8} + \left(-\frac{7}{16}\right) \div \frac{1}{4}$$

$$= \frac{4}{5} - \frac{7}{8} + \left(-\frac{7}{16}\right) \times \frac{4}{1}$$

$$= \frac{4 \times 8}{5 \times 8} - \frac{7 \times 5}{8 \times 5} + \left(-\frac{7}{16}\right) \times \frac{4}{1}$$

$$= \frac{32}{40} - \frac{35}{40} + \left(-\frac{70}{40}\right)$$

$$= \frac{-73}{40} = -1\frac{33}{40}$$

4. $\frac{b}{a} + \frac{c}{d}$

$$\left(-\frac{7}{16} \div \frac{7}{8}\right) + \left(0.8 \div \frac{1}{4}\right)$$

$$\left(\frac{-7}{16} \times \frac{8}{7}\right) = \frac{-1}{2}$$

$$(0.8 \div \frac{1}{4})$$

$$= \frac{-1 \times 5}{2 \times 5} + \frac{32}{10} = \frac{-5 + 32}{10} = \frac{27}{10} = 2\frac{7}{10}$$

5. $d^2 - b$

$$\frac{1}{4} \times \frac{1}{4} - \left(-\frac{7}{16}\right)$$

$$= \frac{1}{16} + \frac{7}{16}$$

$$= \frac{8}{16} = \frac{1}{2}$$

6. $a + \frac{b}{c} - d$

$$\frac{7}{8} + \left(-\frac{7}{16}\right) \div \frac{4}{5} - \frac{1}{4}$$

$$= \frac{7}{8} + \left(-\frac{7}{16}\right) \times \frac{5}{4} - \frac{1}{4}$$

$$= \frac{7 \times 8}{8 \times 8} + \left(-\frac{35}{64}\right) - \frac{1 \times 16}{4 \times 16}$$

$$= \frac{56}{64} + \left(-\frac{35}{64}\right) - \frac{16}{64}$$

$$= \frac{5}{64}$$

Student Name:

الأسئلة المقالية - FRQ

21	Determine whether two quantities shown in a table are in a proportional relationship by testing for equivalent ratios	1 to 8	29
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Lesson 1-3 Tables of Proportional Relationships

For each situation, complete the table given. Does the situation represent a proportional relationship? Explain.

1. The cost of a school lunch is \$2.50.

(Example 1)

Lunches Bought	1	2	3	4
Total Cost (\$)	2.5	5	7.5	10

$$\frac{2.5}{1} = 2.5$$

$$\frac{5}{2} = 2.5$$

$$\frac{7.5}{3} = 2.5$$

$$\frac{10}{4} = 2.5$$

proportional

2. Anna walks her dog at a constant rate of 12 blocks in 8 minutes. (Example 1)

Number of Blocks	12	24	36	48
Number of Minutes	8	16	24	32

$$\frac{12 \div 4}{8 \div 4} = \frac{3}{2}$$

$$\frac{24 \div 8}{16 \div 8} = \frac{3}{2}$$

$$\frac{36}{24} = \frac{3}{2}$$

$$\frac{48}{32} = \frac{3}{2}$$

proportional

3. Fun Center rents popcorn machines for \$20 per hour. In addition to the hourly charge, there is a rental fee of \$35. (Example 2)

Hours	1	2	3	4
Cost (\$)	55	75	95	115

$$\frac{55}{1} = 55$$

$$\frac{75}{2} = 37.5$$

non-proportional

5. Rocko paid \$12.50 for 25 game tickets. Louisa paid \$17.50 for 35 game tickets. What is the constant of proportionality? (Example 3)

$$\frac{25}{12.5} = 2$$

$$\frac{35}{17.5} = 2$$

4. Jean has \$280 in her savings account. Starting next week, she will deposit \$30 in her account every week. (Example 2)

Weeks	1	2	3	4
Savings (\$)	310	340	370	400

$$\frac{310}{1} = 310$$

$$\frac{340}{2} = 170$$

non-proportional

6. A baker, in 70 minutes, iced 40 cupcakes and, in 49 minutes, iced 28 cupcakes. What is the constant of proportionality? (Example 3)

$$\frac{40}{70} = \frac{4}{7}$$

$$\frac{28}{49} = \frac{4}{7}$$

Test Practice

8. Open Response The table shows the distance traveled by a runner. Use the table to find the constant of proportionality.

Distance (mi)	4.55	13.65	22.75	31.85
Time (h)	0.5	1.5	2.5	3.5

$$\frac{4.55}{0.5} = 9.1$$

7. The table shows the amount of dietary fiber in bananas. Use the table to find the constant of proportionality. (Example 4)

Dietary Fiber (g)	9.3	18.6	27.9	37.2
Bananas	3	6	9	12

$$\frac{9.3}{3} = 3.1$$



Student Name:

الأسئلة المقالية - FRQ

22	Use proportional relationships to solve percent of change problems	1 to 8	71
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Lesson 2-1 Percent of Change

Find each percent of change. Identify it as a percent of increase or decrease.

$$\text{Percent of change} = \frac{\text{amount of change}}{\text{original amount}}$$

1. 8 feet to 10 feet

$$10 - 8 = 2$$

$$\frac{2}{8} \times 100$$

$$= \frac{200}{8} = 25\%$$

Increase

2. 62 trees to 31 trees

$$62 - 31 = 31$$

$$\frac{31}{62} \times 100$$

$$\frac{1}{2} \times 100$$

$$= 50\%$$

Decrease

3. 136 days to 85 days

$$136 - 85 = 51$$

$$\frac{51}{136} \times 100$$

$$= 37.5\%$$

Decrease

4. Last month, the online price of a powered ride-on car was \$250. This month, the online price is \$330. What is the percent of increase for the price of the car? (Example 1)

= Big - small

$$= 330 - 250 = 80$$

$$\frac{80}{250} \times 100$$

$$\frac{800}{25} = 32\%$$

5. At end of the first half of a football game, Nathan had carried the ball for 50.5 yards. By the end of the game, he carried the ball for a total of 75 yards. Find the percent of increase in the number of yards he carried. Round to the nearest whole tenth if necessary. (Example 1)

= Big - small

$$= 75 - 50.5 = 24.5$$

$$\frac{24.5}{50.5} \times 100$$

$$= 48.5\%$$

6. A music video website received 5,000 comments on a new song they released. The next day, the artist performed the song on television and an additional 1,500 comments were made on the website. What was the percent of increase? (Example 1)

$$\text{Percent of change} = \frac{\text{amount of change}}{\text{original amount}} \times 100$$

$$\frac{1500}{5000} \times 100 = \frac{150}{5} = 30\%$$

7. When Ricardo was 9 years old, he was 56 inches tall. Ricardo is now 12 years old and he is 62 inches tall. Find the percent of increase in Ricardo's height to the nearest tenth. (Example 1)

$$= \text{Big} - \text{small} = 62 - 56 = 6$$

$$\frac{6}{56} \times \frac{100}{1} = \frac{600}{56} = 10.71\% \approx 10.7\%$$

8. At a garage sale, Petra priced her scooter for \$15.50. She ended up selling it for \$10.75. Find the percent of decrease in the price of the scooter. Round to the nearest tenth if necessary.

① (Example 2)

$$\begin{array}{r} 4 14 10 \\ - 15.50 \\ - 10.75 \\ \hline 4.75 \end{array}$$

②

$$\frac{4.75}{15.5} \times 100 = 30.64\% \approx 30.6\%$$

Student Name:

الأسئلة المقالية - FRQ			
23	Use number lines and mathematical properties to multiply integers Use a related multiplication sentence to divide integers	10 to 13 7 to 12	157 165

Lesson 3-3

Multiply Integers

10. Evaluate ab if $a = -16$ and $b = -5$.

(Example 4)

$$ab = a \cdot b = -16 \times -5 = 80$$

11. Evaluate xy if $x = -10$ and $y = -7$.

(Example 4)

$$xy = x \cdot y = -10 \times -7 = 70$$

12. Evaluate xyz^2 if $x = -2$, $y = 7$, and $z = -4$.

(Example 6)

$$\begin{aligned}
 & x \times y \times z \times z \\
 & = -2 \times 7 \times -4 \times -4 \\
 & = -14 \times 16 = -224
 \end{aligned}$$

13. Evaluate a^2bc if $a = 3$, $b = -14$, and $c = -6$. (Example 6)

$$\begin{aligned}
 & a \times a \times b \times c \\
 & = 3 \times 3 \times -14 \times -6 \\
 & = 9 \times 84 = 756
 \end{aligned}$$

Student Name:

Lesson 3-4 Divide IntegersEvaluate each expression if $m = -32$, $n = 2$, and $p = -8$. (Example 4)

$$\begin{aligned} 7. \frac{m}{n} &= m \div n \\ &= -32 \div 2 \\ &= -16 \end{aligned}$$

$$\begin{aligned} 8. \frac{m}{p} &= m \div p \\ &= -32 \div -8 \\ &= 4 \end{aligned}$$

$$\begin{aligned} 9. \frac{p}{n} &= \frac{-8}{2} \\ &= -4 \end{aligned}$$

Evaluate each expression if $f = -15$, $g = 5$, and $h = -45$. (Example 4)

$$\begin{aligned} 10. \frac{f}{g} &= \frac{-15}{5} \\ &= -3 \end{aligned}$$

$$\begin{aligned} 11. \frac{h}{f} &= \frac{-45}{-15} \\ &= 3 \end{aligned}$$

$$\begin{aligned} 12. \frac{h}{g} &= \frac{-45}{5} \\ &= -9 \end{aligned}$$

Student Name:

الأسئلة المقالية - FRQ

24	Find the additive inverse of a rational number	1 to 6	195
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Lesson 4-2 Add Rational Numbers

OPPOSITE المعكوس

Find the additive inverse of each rational number.

1. $-\frac{1}{2}$

$\frac{1}{2}$

2. 0.25

-0.25

3. $\frac{9}{10}$

$-\frac{9}{10}$

4. -0.4

0.4

- 5 Quinn earned \$24.50 dog-sitting and \$12.70 for recycling cans. Find the total amount he earned and describe a situation in which Quinn ends the week with zero dollars. (Example 2)

$$24.50 + 12.70 = 37.20 \$$$

Additive inverse = $-37.20 \$$

Situation : Quinn spent 37.20\$

$$\begin{array}{r} 24.50 \\ + 12.70 \\ \hline 37.20 \end{array}$$

- 6 Rachel spent \$3.89 on a magazine and \$4.86 on a smoothie. Find the total amount she spent and describe a situation in which Rachel ends the day with zero dollars. (Example 2)

$$-3.89 + -4.86 = -8.75 \$$$

Additive inverse = 8.75

Situation : Rachel got 8.75 \$

$$\begin{array}{r} 3.89 \\ + 4.86 \\ \hline 8.75 \end{array}$$

Student Name:

الأسئلة المقالية - FRQ

25	Subtract rational numbers by adding the additive inverse	Learn 1 to 12	197 201
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Lesson 4-3 Subtract Rational Numbers

Learn Subtract Rational Numbers

To subtract rational numbers in different forms, write the numbers in the same form.

The animation shows how to rewrite a problem using decimals. This method works if the mixed number can be rewritten as a terminating decimal.

Rewrite Using Decimals	
Steps	Example
1. Write the mixed number or fraction as a decimal.	$2\frac{2}{5} - 6.55 = 2\frac{4}{10} - 6.55$ $= 2.4 - 6.55$
2. Subtract the decimals.	$= 2.4 + (-6.55)$ $= -4.15$

The animation also shows how to rewrite a problem using fractions or mixed numbers. This method works when the fraction or mixed number cannot be written as a terminating decimal.

Rewrite Using Fractions or Mixed Numbers	
Steps	Example
1. Write the decimal as a fraction or mixed number.	$4.6 - 2\frac{2}{3} = 4\frac{6}{10} - 2\frac{2}{3}$ $= 4\frac{3}{5} - 2\frac{2}{3}$
2. Rewrite fractions with a common denominator.	$= 4\frac{9}{15} - 2\frac{10}{15}$
3. Subtract the fractions or mixed numbers.	$= 3\frac{24}{15} + (-2\frac{10}{15})$
4. Simplify if necessary.	$= 1\frac{14}{15}$

Use the chart below to find out how to subtract rational numbers written in different forms.

Words	Example
Terminating Decimals $(-\frac{1}{4}, \frac{3}{8}, \frac{7}{8} \dots)$	
If the fractions are decimals that terminate, use decimals or fractions to subtract.	$-0.90 - \frac{1}{10} = -\frac{9}{10} - \frac{1}{10}$ or $= -0.9 - 0.1$

Non-Terminating Decimals $\left(-\frac{1}{9}, \frac{2}{3}, \frac{11}{15} \dots\right)$

If the fractions are decimals that repeat nonzero digits, use fractions to subtract.

$$-\frac{1}{6} - 0.125 = -\frac{1}{6} - \frac{1}{8}$$

Subtract. Write in simplest form. (Examples 1 and 2) *keep - change - opposite.*

1 $-2.5 - (-3.9)$

$-2.5 + 3.9$

different sign (subtract)

$$\begin{array}{r} 3.90 \\ - 2.50 \\ \hline 1.40 \end{array}$$

2 $-4.6 - (-2.31)$

$-4.6 + 2.31$

different sign (subtract)

$$\begin{array}{r} 4.60 \\ - 2.31 \\ \hline 2.29 \end{array}$$

3 $5.47 - (-2.8)$

$5.47 + 2.8$

same sign (Add)

$$\begin{array}{r} 5.47 \\ + 2.80 \\ \hline 8.27 \end{array}$$

4 $-6.2 - 3.79$

$-6.2 + -3.79$

same sign (Add)

$$\begin{array}{r} 6.20 \\ + 3.79 \\ \hline 9.99 \end{array}$$

$$5 \quad 7\frac{5}{12} - (-3\frac{3}{4})$$

$$\frac{89}{12} + \frac{15 \times 3}{4 \times 3}$$

$$\frac{89}{12} + \frac{45}{12}$$

$$\frac{134 \div 2}{12 \div 2} = \frac{67}{6}$$

$$= 11\frac{1}{6}$$

$$6 \quad 5\frac{9}{10} - (-8\frac{2}{5})$$

$$\frac{59}{10} + \frac{42 \times 2}{5 \times 2}$$

$$\frac{59}{10} + \frac{84}{10}$$

$$= \frac{143}{10}$$

$$= 14\frac{3}{10}$$

$$7 \quad -\frac{7}{8} - 2\frac{1}{6}$$

$$\frac{-7 \times 3}{8 \times 3} + \frac{-13 \times 4}{6 \times 4}$$

$$\frac{-21}{24} + \frac{-52}{24}$$

$$\frac{-73}{24}$$

$$= -3\frac{1}{24}$$

$$8 \quad -\frac{8}{15} - 3\frac{4}{5}$$

$$\frac{-8}{15} + \frac{-19 \times 3}{5 \times 3}$$

$$\frac{-8}{15} + \frac{-57}{15}$$

$$\frac{-65 \div 5}{15 \div 5}$$

$$\frac{-13}{3} = -4\frac{1}{3}$$

$$9 \quad -9\frac{7}{10} - (-4\frac{3}{5})$$

$$\frac{-97}{10} + \frac{23 \times 2}{5 \times 2}$$

$$\frac{-97}{10} + \frac{46}{10}$$

$$\frac{-51}{10}$$

$$= -5\frac{1}{10}$$

$$= -5.1$$

$$10 \quad \frac{5 \times 2}{6 \times 2} + (+\frac{3 \times 3}{4 \times 3})$$

$$\frac{10}{12} + \frac{9}{12}$$

$$= \frac{19}{12}$$

$$= 1\frac{7}{12}$$

$$11 \quad -\frac{2 \times 2}{3 \times 2} + (+\frac{1 \times 3}{2 \times 3})$$

$$\frac{-4}{6} + \frac{3}{6}$$

$$= \frac{-1}{6}$$

$$12 \quad -\frac{7 \times 3}{10 \times 3} + (+\frac{4 \times 2}{15 \times 2})$$

$$\frac{-21}{30} + \frac{8}{30}$$

$$= \frac{-13}{30}$$