EOT Math coverage

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MCQ Part

20 Questions

1	Find unit rates when one or both quantities are 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)

1	Find unit rates when one or both quantities are fractions.

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

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

1	Find unit rates when one or both quantities are fractions.

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

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)

1	Find unit rates when one or both quantities are fractions.

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

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)

1	Find unit rates when one or both quantities are fractions.

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

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* $= \frac{5}{9}$ *foot)* (Example 2)

1	Find unit rates when one or both quantities are fractions.

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

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)

1	Find unit rates when one or both quantities are fractions.

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

7. The average sneeze can travel $\frac{3}{100}$ mile in 3 seconds. At this rate, how far can it travel in one minute? *(3 seconds = $\frac{1}{20}$ minute)*

(Example 2)

1	Find unit rates when one or both quantities are fractions.

8. Multiselect Anita is making headbands for her softball team. She needs a total of $\frac{3}{4}$ yard of fabric. Select all types of fabric that cost less than $8 per yard. (Example 2)

- ☐ cotton
- ☐ flannel
- ☐ fleece
- ☐ terry cloth

Fabric	Total Cost for $\frac{3}{4}$ Yard ($)
Cotton	5.54
Flannel	2.62
Fleece	4.27
Terry Cloth	6.52

2	Use models and ratio reasoning to understand how a proportional relationship can exist between quantities.

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	Use models and ratio reasoning to understand how a proportional relationship can exist between quantities.

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

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.

2	Use models and ratio reasoning to understand how a proportional relationship can exist between quantities.

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

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.

2	Use models and ratio reasoning to understand how a proportional relationship can exist between quantities.

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

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.

2	Use models and ratio reasoning to understand how a proportional relationship can exist between quantities.

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

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.

2	Use models and ratio reasoning to understand how a proportional relationship can exist between quantities.

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

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.

2	Use models and ratio reasoning to understand how a proportional relationship can exist between quantities.

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.

- [ ] 5 ft^3 minerals, 5 ft^3 peat moss, 10 ft^3 compost
- [ ] 10 ft^3 minerals, 15 ft^3 peat moss, 15 ft^3 compost
- [ ] 12 ft^3 minerals, 12 ft^3 peat moss, 24 ft^3 compost
- [ ] 20 ft^3 minerals, 20 ft^3 peat moss, 40 ft^3 compost
- [ ] 100 ft^3 minerals, 100 ft^3 peat moss, 200 ft^3 compost
- [ ] 50 ft^3 minerals, 50 ft^3 peat moss, 50 ft^3 compost

3	Determine whether two quantities shown in a table are in a proportional relationship by testing for equivalent ratios.

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 ($)				

3	Determine whether two quantities shown in a table are in a proportional relationship by testing for equivalent ratios.

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

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				

3	Determine whether two quantities shown in a table are in a proportional relationship by testing for equivalent ratios.

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

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 ($)				

3	Determine whether two quantities shown in a table are in a proportional relationship by testing for equivalent ratios.

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

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 ($)				

3	Determine whether two quantities shown in a table are in a proportional relationship by testing for equivalent ratios.

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

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)

3	Determine whether two quantities shown in a table are in a proportional relationship by testing for equivalent ratios.

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

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

3	Determine whether two quantities shown in a table are in a proportional relationship by testing for equivalent ratios.

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

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

3	Determine whether two quantities shown in a table are in a proportional relationship by testing for equivalent ratios.

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

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

4	Write equations to represent proportional relationships.

1. Liv earns $9.50 for every two bracelets she sells. The equation $y = 4.75x$, where x represents the number of bracelets and y represents the total cost in dollars earned, represents this situation. What is the constant of proportionality? What does the constant of proportionality represent in the context of the problem? (Example 1)

4	Write equations to represent proportional relationships.

2. John ran 3 miles in 25.5 minutes. The equation $y = 8.5x$, where x represents the number of miles and y represents the total time in minutes, represents this situation. What is the constant of proportionality? What does the constant of proportionality represent in the context of the problem?

(Example 1)

4	Write equations to represent 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)

4	Write equations to represent proportional relationships.

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)

4	Write equations to represent proportional relationships.

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)

4	Write equations to represent proportional relationships.

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)

4 Write equations to represent proportional relationships.

7. Multiselect The table shows the cost of 4 movie tickets at two theaters. Select the statements that are true about the situation.

Theater	Cost ($)
Movies Galore	30
Star Cinema	31

- ☐ The equation $y = 7.75x$ models the cost for tickets at Star Cinema.
- ☐ The equation $y = 30x$ models the cost for tickets at Movies Galore.
- ☐ The total cost of 9 tickets at Star Cinema would cost $69.75.
- ☐ The total cost for 1 ticket at Movies Galore is $30.

5 Solve problems involving proportional relationships by making a table, using a graph, or writing an equation.

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Example 1 Solve Problems Involving Proportional Relationships

The wait time to ride a roller coaster is 20 minutes when 160 people are in line.

How long is the expected wait time when 240 people are in line? Assume the relationship is proportional.

Method 1 Use a table.

There is no whole number by which you can multiply 160 by to obtain 240.

Scale back to find the unit rate. Because 20 ÷ 20 = 1, divide 160 by 20 to obtain 8. When 8 people are in line, the expected wait time is 1 minute.

÷20

Time (min)	1	20	?
Number of People	8	160	240

÷20

Then scale forward to find the expected wait time when 240 people are in line. Because 8(30) = 240, multiply 1 by 30 to obtain 30.

×30

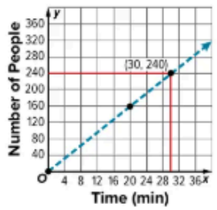
Time (min)	1	20	?
Number of People	8	160	240

×30

When 240 people are in line, the expected wait time is 30 minutes.

Method 2 Use a graph.

Graph the points (0, 0) and (20, 160). Because the relationship is assumed to be proportional, draw a dotted line connecting the points. The line passes through the origin. Determine the corresponding *x*-coordinate for when the *y*-coordinate is 240.



The corresponding *x*-coordinate when the *y*-coordinate is 240 appears to be 30. So, the expected wait time when 240 people are in line is 30 minutes.

Method 3 Use an equation.

The equation that represents a proportional relationship is of the form $y = kx$, where k is the constant of proportionality, or unit rate.

Find the unit rate, the number of people in line when the expected wait time is 1 minute. Let y represent the number of people in line and x represent the number of minutes.

$y = kx$	Write the equation.
$160 = k(20)$	Replace y with 160 and x with 20.
$\frac{160}{20} = \frac{k(20)}{20}$	Divide each side by 20 to find the value of k.
$8 = k$	Simplify. The unit rate, or constant of proportionality, is 8.

When 8 people are in line, the expected wait time is 1 minute. Use the equation $y = 8x$ to find the expected wait time when 240 people are in line.

$y = 8x$	Write the equation. The constant of proportionality is 8.
$240 = 8x$	Replace y with 240.
$\frac{240}{8} = \frac{8x}{8}$	Divide each side by 8 to find the value of x.
$30 = x$	Simplify.

So, the expected wait time when 240 people are in line is 30 minutes.

5	Solve problems involving proportional relationships by making a table, using a graph, or writing an equation.

For each problem, use any method. Assume each relationship is proportional. (Examples 1 and 2)

1. For every three girls taking classes at a martial arts school, there are 4 boys who are taking classes. If there are 236 boys taking classes, predict the number of girls taking classes at the school.

5	Solve problems involving proportional relationships by making a table, using a graph, or writing an equation.

For each problem, use any method. Assume each relationship is proportional. (Examples 1 and 2)

2. A grading machine can grade 96 multiple choice tests in 2 minutes. If a teacher has 300 multiple choice tests to grade, predict the number of minutes it will take the machine to grade the tests.

5	Solve problems involving proportional relationships by making a table, using a graph, or writing an equation.

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For each problem, use any method. Assume each relationship is proportional. (Examples 1 and 2)

3. A 6-ounce package of fruit snacks contains 45 pieces. How many pieces would you expect in a 10-ounce package?

5	Solve problems involving proportional relationships by making a table, using a graph, or writing an equation.

For each problem, use any method. Assume each relationship is proportional. (Examples 1 and 2)

4. Of the 50 students in the cafeteria, 7 have red hair. If there are 750 students in the school, predict the number of students who have red hair.

5	Solve problems involving proportional relationships by making a table, using a graph, or writing an equation.

For each problem, use any method. Assume each relationship is proportional. (Examples 1 and 2)

5. The wait times for two different rides are shown in the table. If there are 120 people in line for the swings, how long can you expect to wait to ride the ride?

Ride	Wait Times
Carousel	6 minutes for 48 people in line
Swings	12 minutes for 75 people in line

5	Solve problems involving proportional relationships by making a table, using a graph, or writing an equation.

6. **Open Response** Ingrid types 3 pages in the same amount of time that Tanya types 4.5 pages. If Ingrid and Tanya start typing at the same time and continue at their respective rates, how many pages will Tanya have typed when Ingrid has typed 11 pages?

6	Solve problems involving proportional relationships by making a table, using a graph, or writing an equation.

7. The ratio of kids to adults at a school festival is 11 : 7. Suppose there are a total of 810 kids and adults at the festival. How many adults are at the festival?

6	Solve problems involving proportional relationships by making a table, using a graph, or writing an equation.

8. The ratio of laptops to tablets in the stock room of a store is 13 : 17. If there are a total of 90 laptops and tablets in the stock room, how many laptops are in the stock room?

9. MP Persevere with Problems Lisa is painting the exterior surfaces at her home. A gallon of paint will cover 350 square feet. How many gallons of paint will Lisa need to paint one side of her fence? Explain how you solved.

Item to Paint	Length (ft)	Width (ft)
Fence	26	7
Barn Door	11	6

10. MP **Find the Error** The rate of growth for a plant is 0.2 centimeter per 0.5 day. A student found the number of days for the plant to grow 3.6 centimeters to be 1.44 days. Find the error and correct it.

7	Use proportional relationships to solve percent of change problems.

Find each percent of change. Identify it as a percent of increase or decrease. (Examples 1–3)

1. 8 feet to 10 feet

7	Use proportional relationships to solve percent of change problems.

Find each percent of change. Identify it as a percent of increase or decrease. (Examples 1–3)

2. 62 trees to 31 trees

7	Use proportional relationships to solve percent of change problems.

Find each percent of change. Identify it as a percent of increase or decrease. (Examples 1–3)

3. 136 days to 85 days

7	Use proportional relationships to solve percent of change problems.

Find each percent of change. Identify it as a percent of increase or decrease. (Examples 1–3)

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)

Find each percent of change. Identify it as a percent of increase or decrease. (Examples 1–3)

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)

7	Use proportional relationships to solve percent of change problems.

Find each percent of change. Identify it as a percent of increase or decrease. (Examples 1–3)

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)

7	Use proportional relationships to solve percent of change problems.

Find each percent of change. Identify it as a percent of increase or decrease. (Examples 1–3)

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)

7	Use proportional relationships to solve percent of change problems.

Find each percent of change. Identify it as a percent of increase or decrease. (Examples 1–3)

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. (Example 2)

7	Use proportional relationships to solve percent of change problems.

Find each percent of change. Identify it as a percent of increase or decrease. (Examples 1–3)

9. At the beginning of a baking session, there were 2.26 kilograms of flour in the bag. By the end of the baking session, there was 0.98 kilogram of flour in the bag. What is the percent of decrease, rounded to the nearest tenth, for the amount of flour? (Example 2)

8	Use proportional relationships to find the amount of tax charged for an item

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

1. $18 breakfast; 7% tax

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

2. $24 shirt; 6% tax

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

3. $49.95 pair of shoes; 5% tax

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

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)

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

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)

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

6. Mr. Phuong stayed in a hotel room for 2 nights that cost $210. The hotel room tax rate in the city is 12%. What is the total cost for the hotel room? (Example 2)

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

7. The cost of a hotel room during Lacy's trip is $325. The hotel room tax in the city she is in is 10.5%. What is the total cost of the hotel room? (Example 2)

8	Use proportional relationships to find the amount of tax charged for an item

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

8. Robert spends $30.45, before tax, at the bookstore. If the sales tax rate in his city is 7.25%, what is the total cost of his purchase? (Example 3)

9. Multiple Choice Anya purchased $124.35 worth of home improvement items at the hardware store. If the sales tax rate in her city is 6.75%, what is the total cost of her purchase? (Example 3)

(A) $131.10

(B) $8.39

(C) $115.96

(D) $132.74

9	Use proportional relationships to find the amount of discount or markdown.

P:97

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

1. $140 coat; 10% discount

9	Use proportional relationships to find the amount of discount or markdown.

P:97

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

2. $80 boots; 25% discount

9	Use proportional relationships to find the amount of discount or markdown.

P:97

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

3. $325 tent; 15% discount

9	Use proportional relationships to find the amount of discount or markdown.

P:97

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

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)

9	Use proportional relationships to find the amount of discount or markdown.

P:97

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

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)

9	Use proportional relationships to find the amount of discount or markdown.

P:97

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

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)

9	Use proportional relationships to find the amount of discount or markdown.

P:97

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

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)

9	Use proportional relationships to find the amount of discount or markdown.

P:97

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

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)

9	Use proportional relationships to find the amount of discount or markdown.

P:97

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

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)

9	Use proportional relationships to find the amount of discount or markdown.

10. Open Response A shoe store is having a clearance sale on their summer shoes. All summer shoes are marked 55% off. A sign states you can take an additional 10% off the clearance sale prices. Kelly is deciding between two pairs of sandals shown in the table. If she buys the blue sandals, what is the final price Kelly will pay? Round to the nearest cent.

Shoes	Original Price
Blue Sandals	$75
Tan Sandals	$68

10	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.

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

1. $530, 6%, 1 year

10	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.

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

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

10	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.

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

3. $750, 7%, 3 years

10	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.

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

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)

10	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.

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

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)

10	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.

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

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)

10	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.

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

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)

10	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.

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

8. Jack borrows $2,700 at a rate of 8.2% per year. How much simple interest will he owe if it takes 3 months to repay the loan? Round to the nearest cent. (Example 3)

10	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.

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

9. Liliya's parents borrow $1,400 from the bank for a new washer and dryer. The interest rate is 7.5% per year. How much simple interest will they pay if they take 18 months to repay the loan? Round to the nearest cent. (Example 3)

10	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.

10. Open Response The table shows the interest rates for auto repair loans based on how long it takes to pay off the loan. Jin borrows $3,600 and plans to pay the loan off in 18 months. How much simple interest will he owe if it takes 18 months to repay the loan? Round to the nearest cent.

Time	Rate (%)
6 months	3.5
12 months	4.0
18 months	4.25

11	Use proportional relationships to solve percent error problems.

Solve each problem.

1. Doug estimates that his soccer team will win 7 games this year. The team actually wins 10 games. What is the percent error of Doug's estimate? Round the answer to the nearest tenth percent, if necessary.

(Example 1)

11	Use proportional relationships to solve percent error problems.

P:119

Solve each problem.

2. A mayor estimates that 4,000 people will attend the first day of the county fair. A total of 8,400 people actually attend the first day of the fair. What is the percent error of the mayor's estimate? Round the answer to the nearest tenth percent, if necessary.

(Example 1)

11	Use proportional relationships to solve percent error problems.

P:119

Solve each problem.

3. Maya estimates that the wait time for her favorite roller coaster is 35 minutes. The actual wait time is 55.5 minutes. What is the percent error of Maya's estimate? Round the answer to the nearest tenth of a percent, if necessary. (Example 1)

11	Use proportional relationships to solve percent error problems.

P:119

Solve each problem.

4. Oliver estimates the weight of his cat to be 16 pounds. The actual weight of his cat is 14.25 pounds. What is the percent error of Oliver's estimate rounded to the nearest tenth of a percent? (Example 1)

11	Use proportional relationships to solve percent error problems.

P:119

Solve each problem.

5. A jar of marbles should contain 100 marbles. The jar actually has 99 marbles. What is the percent error to the nearest hundredth of a percent? (Example 1)

11	Use proportional relationships to solve percent error problems.

Solve each problem.

6. A cyclist estimates that he will bike 80 miles this week. He actually bikes 75.5 miles. What is the percent error of the cyclist's estimate rounded to the nearest hundredth of a percent? (Example 1)

11	Use proportional relationships to solve percent error problems.

Solve each problem.

7. The table shows the predicted and actual amount of snow for a local city. What is the percent error for the amount of snowfall? Round the answer to the nearest tenth of a percent if necessary. (Example 1)

	Snowfall (inches)
Predicted	6.75
Actual	10.25

11	Use proportional relationships to solve percent error problems.

8. Multiple Choice Jin's mother estimates there is a half gallon of fruit punch remaining in the container. There is actually 72 ounces of fruit punch in the container. What is the percent error of Jin's mother's estimate, rounded to the nearest tenth?

(A) 11.1%

(B) 36%

(C) 88.9%

(D) 144%

12 | Use different methods, including algebra tiles, number lines, or absolute value, to add integers.

Add. (Examples 1, 4, and 6)

1. $-3 + (-8)$

12 | Use different methods, including algebra tiles, number lines, or absolute value, to add integers.

Add. (Examples 1, 4, and 6)

2. $-11 + (-13)$

Add. (Examples 1, 4, and 6)

3. $9 + (-35)$

12 | Use different methods, including algebra tiles, number lines, or absolute value, to add integers.

Add. (Examples 1, 4, and 6)

4. $-28 + 14$

Add. (Examples 1, 4, and 6)

5. $-22 + (-10) + 15$

12	Use different methods, including algebra tiles, number lines, or absolute value, to add integers.

Add. (Examples 1, 4, and 6)

6. $18 + (-12) + 5$

13	Use different methods, including algebra tiles, number lines, or the additive inverse, to subtract integers.

P:147

Subtract. (Examples 1 and 2)

1. $9 - (-2)$

13	Use different methods, including algebra tiles, number lines, or the additive inverse, to subtract integers.

P:147

Subtract. (Examples 1 and 2)

2. $-20 - 10$

13	Use different methods, including algebra tiles, number lines, or the additive inverse, to subtract integers.

P:147

Subtract. (Examples 1 and 2)

3. $13 - (-63)$

13	Use different methods, including algebra tiles, number lines, or the additive inverse, to subtract integers.

P:147

Subtract. (Examples 1 and 2)

4. $28 - 14$

13	Use different methods, including algebra tiles, number lines, or the additive inverse, to subtract integers.

P:147

Subtract. (Examples 1 and 2)

5. $-10 - 0$

13	Use different methods, including algebra tiles, number lines, or the additive inverse, to subtract integers.

P:147

Subtract. (Examples 1 and 2)

6. $-33 - 33$

13	Use different methods, including algebra tiles, number lines, or the additive inverse, to subtract integers.

P:147

Subtract. (Examples 1 and 2)

7. $-18 - (-12)$

13	Use different methods, including algebra tiles, number lines, or the additive inverse, to subtract integers.

P:147

Subtract. (Examples 1 and 2)

8. $-28 - (-13)$

13	Use different methods, including algebra tiles, number lines, or the additive inverse, to subtract integers.

P:147

Subtract. (Examples 1 and 2)

9. $-18 - (-40)$

14	Use a related multiplication sentence to divide integers.

P:165

Divide. (Examples 1 and 3)

1. $22 \div (-2)$

14	Use a related multiplication sentence to divide integers.

P:165

Divide. (Examples 1 and 3)

2. $-110 \div 11$

14	Use a related multiplication sentence to divide integers.

P:165

Divide. (Examples 1 and 3)

3. $75 \div (-3)$

14	Use a related multiplication sentence to divide integers.

P:165

Divide. (Examples 1 and 3)

4. $-64 \div (-8)$

14	Use a related multiplication sentence to divide integers.

P:165

Divide. (Examples 1 and 3)

5. $-39 \div (-13)$

14	Use a related multiplication sentence to divide integers.

P:165

Divide. (Examples 1 and 3)

6. $-50 \div (-10)$

14	Use a related multiplication sentence to divide integers.

P:165

Evaluate each expression if $m = -32$, $n = 2$, and $p = -8$. (Example 4)

7. $\frac{m}{n}$

8. $\frac{m}{p}$

9. $\frac{p}{n}$

15 Divide rational numbers.

P:183

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

(Examples 1 and 2)

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

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

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

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

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

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

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

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

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

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

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

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

15 Divide rational numbers.

P:183

13. Open Response Ms. Bradley surveyed her class about their favorite fruits. The results are shown in the table.

Fruit	Fraction of the Class
Apples	$\frac{8}{30}$
Kiwi	$\frac{1}{30}$
Peaches	$\frac{12}{30}$
Strawberries	$\frac{9}{30}$

A. Write the fraction of students who prefer strawberries, as a decimal. Determine if the decimal is a terminating decimal.

B. Write the fraction of students who prefer kiwi, as a decimal. Determine if the decimal is a terminating decimal.

16	Find the additive inverse of rational numbers

P:195

Find the additive inverse of each rational number. (Example 1)

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

2. 0.25

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

4. -0.4

17 Add rational numbers.

P:195

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

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

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

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

17 Add rational numbers.

P:195

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

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

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

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

17 Add rational numbers.

P:195

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

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

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

18	Subtract rational numbers by adding the additive inverse.

P:201

Subtract. Write in simplest form. (Examples 1 and 2)

1. $-2.45 - (-3.9)$

2. $-4.6 - (-2.31)$

18	Subtract rational numbers by adding the additive inverse.

P:201

Subtract. Write in simplest form. (Examples 1 and 2)

3. $5.47 - (-2.8)$

4. $-6.2 - 3.79$

18	Subtract rational numbers by adding the additive inverse.

P:201

13. Evaluate $x - y$ if $x = -5\frac{1}{4}$ and $y = -6.8$.

Write your answer in simplest form.

(Example 3)

18	Subtract rational numbers by adding the additive inverse.

P:201

14. Equation Editor Evaluate $a - b$ if $a = -2.5$ and $b = \frac{2}{5}$. Write your answer in simplest form.

18	Subtract rational numbers by adding the additive inverse.

P:201

15. Evaluate $s - t$ if $s = \frac{1}{4}$ and $t = -1.75$. Write your answer in simplest form. (Example 3)

19	Use the rules for multiplying integers to multiply rational numbers.

P:211

Multiply. Write the product in simplest form. (Examples 1 and 2)

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

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

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

19	Use the rules for multiplying integers to multiply rational numbers.

P:211

Multiply. Write the product in simplest form. (Examples 1 and 2)

4. $1\frac{4}{9}\left(-2\frac{4}{7}\right)$

5. $1\frac{1}{10}\left(-6\frac{7}{8}\right)$

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

19	Use the rules for multiplying integers to multiply rational numbers.

P:211

Multiply. Write the product in simplest form. (Example 3)

7. $-\frac{1}{6}(2.4)$

8. $\frac{2}{5}(-3.75)$

9. $-\frac{1}{4}(-8.6)$

19	Use the rules for multiplying integers to multiply rational numbers.

P:211

Evaluate each expression if $x = -\frac{2}{3}$, $y = \frac{3}{5}$, and $z = -1\frac{7}{8}$. Write the product in simplest form. (Example 4)

10. $\frac{1}{4}xy$

11. $-\frac{4}{5}xz$

12. $\frac{1}{2}yz$

19	Use the rules for multiplying integers to multiply rational numbers.

P:211

13. Evaluate $-xyz$ if $x = -8.4$, $y = 0.25$, and $z = 3\frac{4}{5}$. Write your answer in simplest form.

(Example 5)

20	Use the rules for dividing integers to divide rational numbers.

Divide. Write your answer in simplest fraction form. (Examples 1 and 2)

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

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

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

20	Use the rules for dividing integers to divide rational numbers.

Divide. Write your answer in simplest fraction form. (Examples 1 and 2)

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

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

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

20	Use the rules for dividing integers to divide rational numbers.

Divide. Write your answer in simplest fraction form. (Examples 1 and 2)

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

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

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

20	Use the rules for dividing integers to divide rational numbers.

Divide. Write your answer in simplest fraction form. (Examples 1 and 2)

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

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

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

20	Use the rules for dividing integers to divide rational numbers.

13. Evaluate $\frac{x}{y}$ if $x = \frac{4}{5}$ and $y = -0.1$. Write your answer in simplest form. (Example 3)

FRQ Part

5 Questions

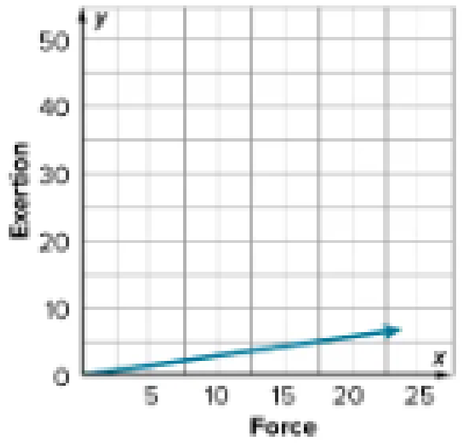
21	Explain what the points (0, 0) and (1, r) mean on the graph of a proportional relationship.

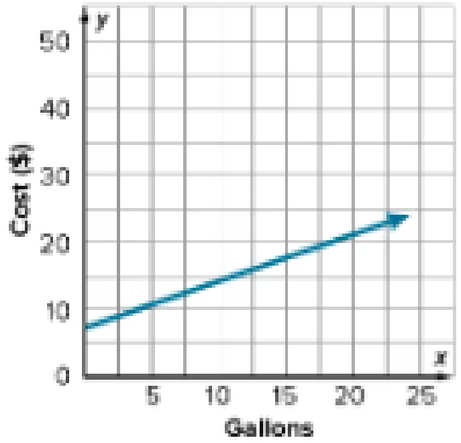
P:31-35

Learn Proportional Relationships and Graphs

A graph shows a proportional relationship if it is a straight line through the origin. A graph shows a nonproportional relationship if it is not a straight line, or is a straight line that does not pass through the origin.

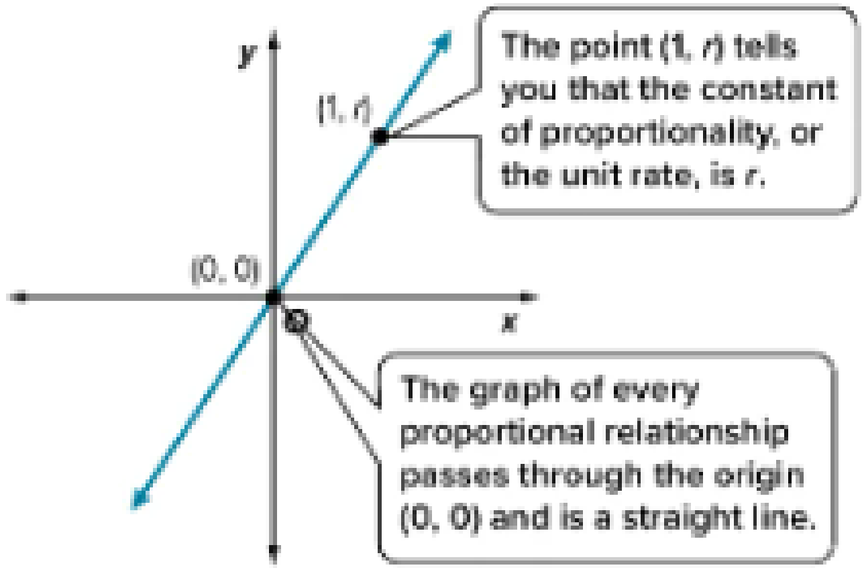
Determine if the relationship shown in each graph is *proportional* or *nonproportional*.





Learn Analyze Points on a Graph

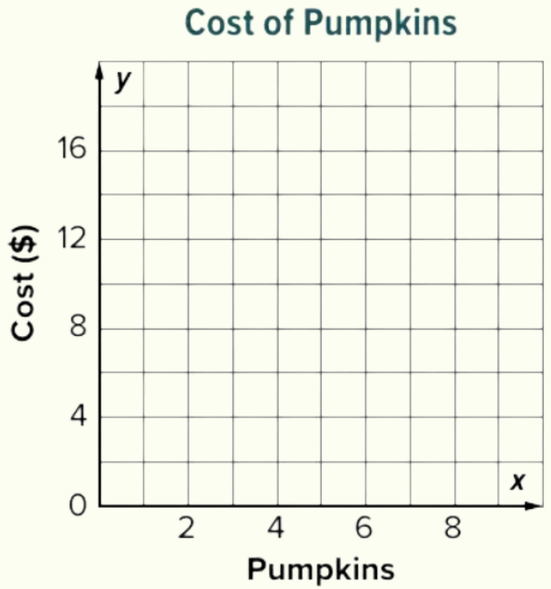
When two quantities are proportional, you can use a graph to find the constant of proportionality and to interpret the point (0, 0).



21	Explain what the points (0, 0) and (1, r) mean on the graph of a proportional relationship.

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)

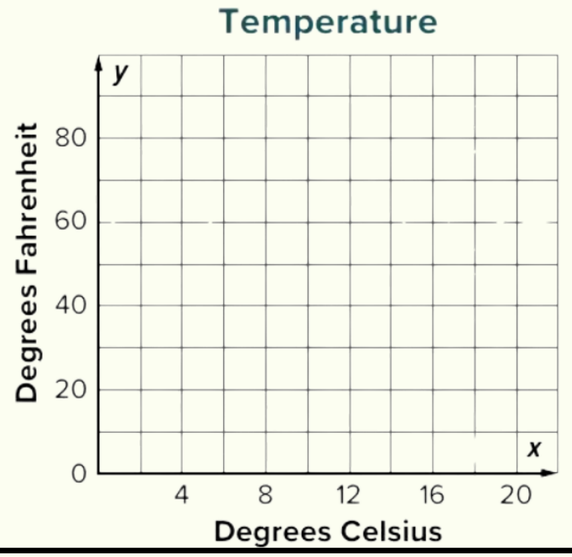
Number of Pumpkins	0	1	2	3	4
Cost ($)	0	4	8	12	16



21	Explain what the points (0, 0) and (1, r) mean on the graph of a proportional relationship.

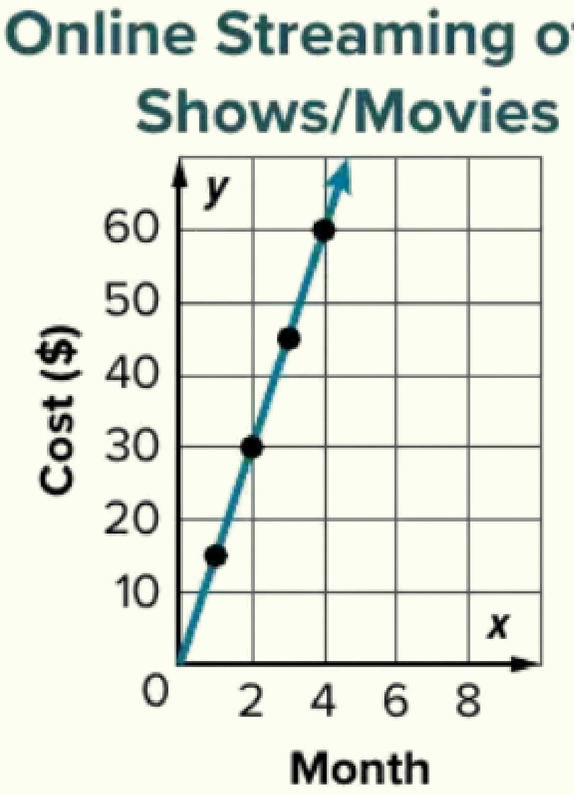
2. The table shows temperatures in degrees Celsius and their equivalent temperatures in degrees Fahrenheit. Determine whether the temperature in degrees Fahrenheit is proportional to the temperature in degrees Celsius by graphing the relationship on the coordinate plane. Explain. (Example 2)

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



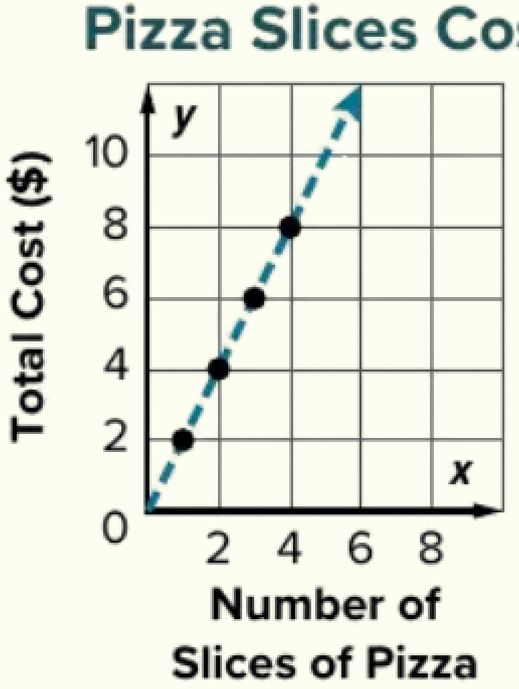
21	**Explain what the points (0, 0) and (1, r) mean on the graph of a proportional relationship.**

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



21	Explain what the points (0, 0) and (1, r) mean on the graph of a proportional relationship.

4. Open Response The cost per slice of pizza is proportional to the number of slices as shown in the graph. What do the points (0, 0) and (1, 2) represent? (Example 4)



22	Use proportional relationships to find the amount to pay for a tip and the amount of markup on items.

P:89

Find the total cost to the nearest cent. Use any strategy. (Examples 1 and 2)

4. Vera went to the local salon to get a haircut. The cost was $24. Vera tipped the hair stylist 18%. What was the total cost of haircut including the tip? Round to the nearest cent. (Example 1)

22	Use proportional relationships to find the amount to pay for a tip and the amount of markup on items.

Find the total cost to the nearest cent. Use any strategy. (Examples 1 and 2)

5. The Gomez family ordered $39.50 worth of pizza and subs. They gave the delivery person a 20% tip. What was the total cost of the food and tip? Round to the nearest cent. (Example 1)

22	Use proportional relationships to find the amount to pay for a tip and the amount of markup on items.

Find the total cost to the nearest cent. Use any strategy. (Examples 1 and 2)

6. The wholesale cost of a bicycle is $98.75. The markup for the bicycle is 33.3%. Find the selling price of the bicycle. Round to the nearest cent. (Example 2)

22	Use proportional relationships to find the amount to pay for a tip and the amount of markup on items.

P:89

Find the total cost to the nearest cent. Use any strategy. (Examples 1 and 2)

7. The wholesale cost for a purse in a department store is $12.50. The store plans to mark up the purse by 140%. What will be the selling price of the purse? Round to the nearest cent. (Example 2)

22	Use proportional relationships to find the amount to pay for a tip and the amount of markup on items.

P:89

Find the total cost to the nearest cent. Use any strategy. (Examples 1 and 2)

8. Keri is making doll clothes for a holiday craft show. The wholesale cost of the materials for one outfit is $9.38. If she sells an outfit for $15, what is the percent of markup? Round to the nearest percent.

(Example 3)

22	Use proportional relationships to find the amount to pay for a tip and the amount of markup on items.

P:89

Find the total cost to the nearest cent. Use any strategy. (Examples 1 and 2)

9. A pet store sells a large dog kennel for $98.50. The wholesale cost of the kennel is $63.55. What is the percent of markup? Round to the nearest percent. (Example 3)

22	Use proportional relationships to find the amount to pay for a tip and the amount of markup on items.

P:89

10. Open Response An elementary school wants to purchase a new swing set. The table shows the selling price of the swing sets they are interested in buying. The markup for both swing sets is $20\frac{1}{4}\%$. The school decides to buy the Adventurers swing set. What is the selling price of the swing set they are buying?

Swing Set	Wholesale Price ($)
Adventurers	3,056
Thunder Ridge	4,125

23	Use the order of integer operations to evaluate expressions.

P:169

Evaluate each expression. (Examples 1 and 2)

1. $-5(6) + (-9)$

2. $\frac{-36}{9} + (-7)$

3. $-4(-8) + (-10)$

23	Use the order of integer operations to evaluate expressions.

P:169

Evaluate each expression. (Examples 1 and 2)

4. $2(-5)(-6) - (-12)$

5. $10(-3)(4) - (-15)$

6. $2\left(\frac{-80}{4}\right) - 14$

23	Use the order of integer operations to evaluate expressions.

P:169

Evaluate each expression if $a = -2$, $b = 3$, $c = -12$, and $d = -4$. (Example 3)

7. $\frac{bd}{a} + c$

8. $\frac{ac}{b} - (a + d)$

9. $\frac{d^3}{a^2} - (c + b)$

23	Use the order of integer operations to evaluate expressions.

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

10. $\frac{pr}{n} + m$

11. $\frac{p^2}{m} - (np + r)$

12. $\frac{p^3}{r^2} - (m + np)$

24	Subtract rational numbers by adding the additive inverse.

P:201

5. $7\frac{5}{12} - \left(-3\frac{3}{4}\right)$

6. $5\frac{9}{10} - \left(-8\frac{2}{5}\right)$

24	Subtract rational numbers by adding the additive inverse.

P:201

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

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

9. $-9\frac{7}{10} - \left(-4\frac{3}{5}\right)$

24	Subtract rational numbers by adding the additive inverse.

P:201

10. $\frac{5}{6} - \left(-\frac{3}{4}\right)$

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

12. $-\frac{7}{10} - \left(-\frac{4}{15}\right)$

25	Add, subtract, multiply, and divide rational numbers.

P:225

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

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

2. $a + b + cd$

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

25	Add, subtract, multiply, and divide rational numbers.

P:225

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

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

5. $d^2 - b$

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

25	Add, subtract, multiply, and divide rational numbers.

P:225

Evaluate each expression if $a = \frac{7}{10}$, $b = \frac{3}{5}$, $c = -1.9$, and $d = -\frac{1}{5}$. Write your answer in simplest form. (Example 2)

7. $\frac{1}{2}(a - b) + c$

8. $0.25(a + b) - d$

9. $b + 0.2(c - d)$

25	Add, subtract, multiply, and divide rational numbers.

P:225

Evaluate each expression if $a = \frac{7}{10}$, $b = \frac{3}{5}$, $c = -1.9$, and $d = -\frac{1}{5}$. Write your answer in simplest form. (Example 2)

10. $(b + d) - a$

11. $b^2 + \frac{1}{10}(d - b)$

12. $b + \frac{c}{d}$

25	Add, subtract, multiply, and divide rational numbers.

P:225

13. Equation Editor Evaluate $4.5(xy) - \frac{x}{5}$ if $x = 12$ and $y = \frac{2}{3}$.

Good Luck



By: Mohammed Salem Saeed :)