



وزارة التربية والتعليم
MINISTRY OF EDUCATION

Reavel Coverage Grade 7 GEN First Term of 2025- 2026

إحجز مكانك واستعد للامتحان بثقة كاملة

احصل على الشرح الكامل للصف من خلال:

التواصل والحجز عبر الـ Whatsapp
اضغط على الرقم: 0566991363



Mr. Aghead

للتواصل والحجز



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شرح الدروس



انضم للقناة



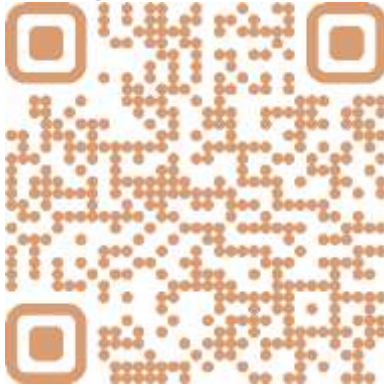
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0566991363

Mr. Aghead

يمكنكم الحصول على

بـ 99
درهم فقط

احصل على شرح مفصّل للهيكل كامل



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Question 1: Find unit rates when one or both quantities are fractions (Page 11)

MCQ - Objective questions



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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)

a) 64

b) $\frac{9}{56}$

c) 124.8

d) 40

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

a) 64

b) $\frac{9}{56}$

c) 124.8

d) 40

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

a) 64

b) $\frac{9}{56}$

c) 124.8

d) 40

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)

a) 64

b) $\frac{9}{56}$

c) 124.8

d) 40

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)

a) $\frac{5}{9}$

b) $\frac{1}{5}$

c) $\frac{20}{27}$

d) 40

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)

a) $\frac{5}{9}$

b) $\frac{1}{5}$

c) 124.8

d) 40

Question 2: Use models and ratio reasoning to understand how a proportional relationship can exist between quantities (page 19)

MCQ - Objective questions



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Determine if each situation represents a proportional relationship.

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.

- | |
|---|
| a) yes, both have a ratio of 3:1 |
| b) yes, both have a ratio of 7:200 |
| c) yes, both have a ratio of 4 feet in 1 second |
| d) no, one ratio is 2:3 and other is 3:4 |

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.

- | |
|---|
| a) yes, both have a ratio of 3:1 |
| b) yes, both have a ratio of 7:200 |
| c) yes, both have a ratio of 4 feet in 1 second |
| d) no, one ratio is 2:3 and other is 3:4 |

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.

- | |
|---|
| a) yes, both have a ratio of 3:1 |
| b) yes, both have a ratio of 7:200 |
| c) yes, both have a ratio of 4 feet in 1 second |
| d) no, one ratio is 2:3 and other is 3:4 |

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.

- | |
|---|
| a) yes, both have a ratio of 3:1 |
| b) yes, both have a ratio of 7:200 |
| c) yes, both have a ratio of 4 feet to 1 second |
| d) no, one ratio is 2:3 and other is 3:4 |

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.

- | |
|--|
| a) no, one ratio is 4 cm to 1 year and other is 3 cm to 1 year |
| b) no, one ratio is $\frac{1}{2}$ inch per month and other is $\frac{1}{3}$ inch per month |
| c) yes, both have a ratio of 3:1 |
| d) no, one ratio is 2:3 and other is 3:4 |

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.

- | |
|--|
| a) no, one ratio is 4 cm to 1 year and other is 3 cm to 1 year |
| b) no, one ratio is $\frac{1}{2}$ inch per month and other is $\frac{1}{3}$ inch per month |
| c) yes, both have a ratio of 3:1 |
| d) no, one ratio is 2:3 and other is 3:4 |

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:

- | |
|--|
| a) 5 ft ³ minerals, 5 ft ³ 3 peat moss, 10 ft ³ compost |
| b) 12 ft ³ minerals, 12 ft ³ peat moss, 24 ft ³ compost |
| c) 20 ft ³ minerals, 20 ft ³ peat moss, 40 ft ³ compost |
| d) all of the above correct |

2:

- | |
|---|
| a) 100 ft ³ minerals, 100 ft ³ peat moss, 200 ft ³ compost |
| b) 10 ft ³ minerals, 15 ft ³ peat moss, 15 ft ³ compost |
| c) 50 ft ³ minerals, 50 ft ³ peat moss, 50 ft ³ compost |
| d) all of the above correct |

Question 3: Determine if a relationship is proportional by analyzing its graph (page 39)

MCQ - Objective questions



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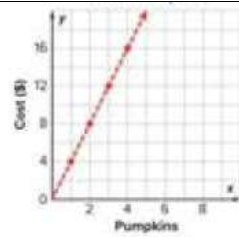
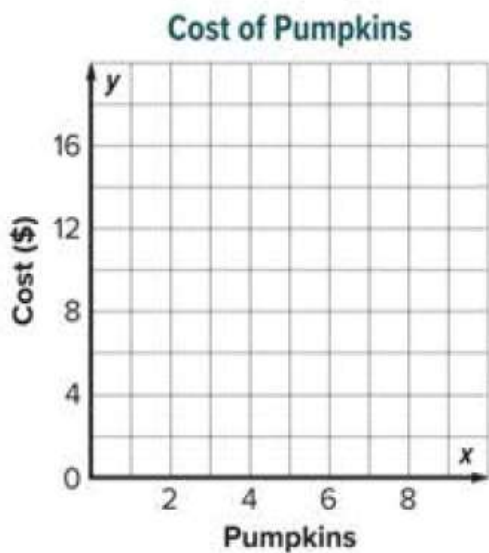
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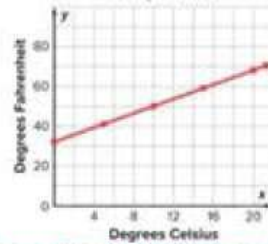
1. The cost of pumpkins is shown in the table.
Determine whether the cost of a pumpkin is proportional to the number bought by graphing the relationship on the coordinate plane. Explain. (Example 1)

Number of Pumpkins	0	1	2	4	5
Cost (\$)	0	4	8	12	16



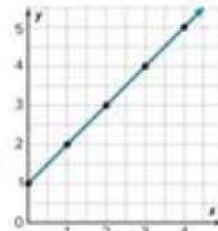
The cost is proportional to the number of pumpkins bought because the graph is a straight line through the origin.

a)



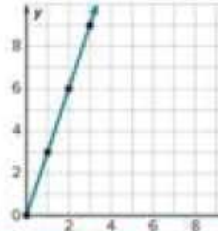
Degrees Fahrenheit is not proportional to degrees Celsius because the graph does not pass through the origin.

b)



The graph of the line is not proportional because it does not pass through the origin so the graph cannot have a constant of proportionality.

c)

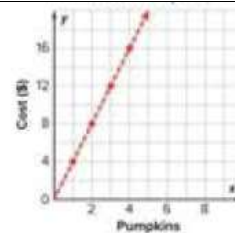
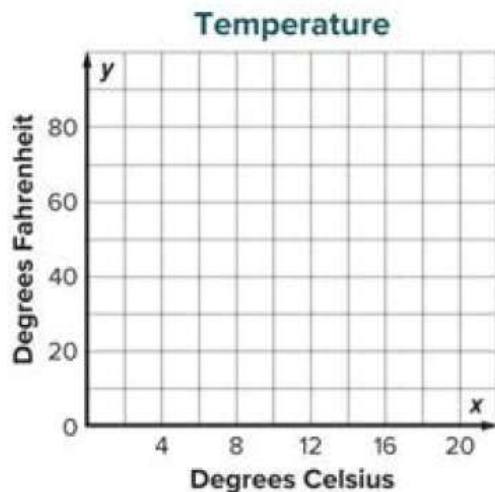


Sample answer: The graph shows the number of feet per yard. The constant of proportionality is 3, so, for every yard, there are 3 feet.

d)

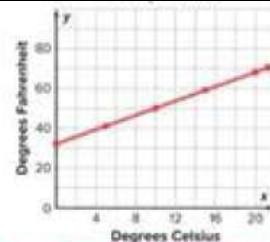
2. The table shows temperatures in degrees Celsius and their equivalent temperatures in degrees Fahrenheit. Determine whether the temperature in degrees Fahrenheit is proportional to the temperature in degrees Celsius by graphing the relationship on the coordinate plane. Explain. (Example 2)

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



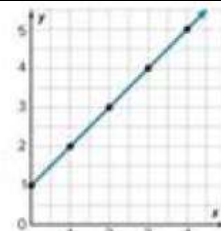
The cost is proportional to the number of pumpkins bought because the graph is a straight line through the origin.

a)



Degrees Fahrenheit is not proportional to degrees Celsius because the graph does not pass through the origin.

b)



The graph of the line is not proportional because it does not pass through the origin so the graph cannot have a constant of proportionality.

c)



Sample answer: The graph shows the number of feet per yard. The constant of proportionality is 3, so, for every yard, there are 3 feet.

d)

Question 4: Find the constant of proportionality
from graph (page 39)

MCQ - Objective questions



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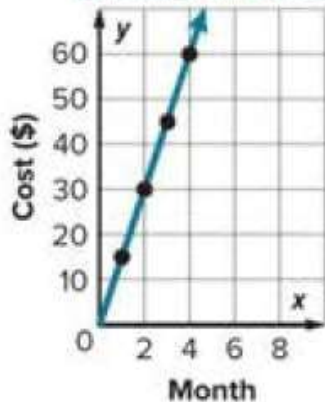
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3. The total cost of online streaming is proportional to the number of months. What is the constant of proportionality? (Example 3)

Online Streaming of TV Shows/Movies



a) 15

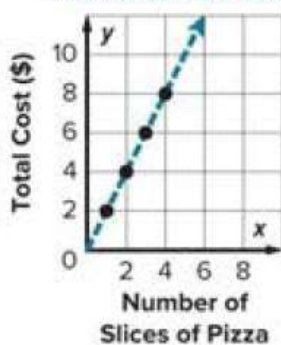
b) 20

c) 10

d) 17

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)

Pizza Slices Cost



a) the point (0, 0) represents 0 slice cost 50.
the point (1, 2) represents 1 slice cost 52.

b) the point (0, 0) represents 0 slice cost 54.
the point (1, 2) represents 1 slice cost 12.

c) the point (1, 0) represents 0 slice cost 50.
the point (0, 2) represents 1 slice cost 52.

d) the point (0, 2) represents 0 slice cost 50.
the point (0, 2) represents 1 slice cost 52.

Question 5: Write equations to represent proportional relationships (page 47)

MCQ - Objective questions



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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)

a) $y = 1.5x$

b) $y = 18x$

c) $y = 1\frac{3}{4}x: 10\frac{1}{2}c$

d) $y = 2\frac{1}{4}x: 15\frac{3}{4}yd$

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?

a) $y = 1.5x$

b) $y = 18x$

c) $y = 1\frac{3}{4}x$

d) $y = 2\frac{1}{4}x$

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?

a) $y = 1.5x$: $5\frac{1}{6}c$

b) $y = 18x$: $10\frac{1}{3}c$

c) $y = 1\frac{3}{4}x$: $10\frac{1}{2}c$

d) $y = 2\frac{1}{4}x$: $15\frac{3}{4}c$

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?

a) $y = 1.5x$: $5\frac{1}{6}yd$

b) $y = 18x$: $10\frac{1}{3}yd$

c) $y = 1\frac{3}{4}x$: $10\frac{1}{2}yd$

d) $y = 2\frac{1}{4}x$: $15\frac{3}{4}yd$

Question 6: Use proportional relationships to find the amount of tax charged for an item (page 81)

MCQ - Objective questions



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Find the total cost to the nearest cent.

1. \$18 breakfast; 7% tax

a) 19.26\$

b) 25.44\$

c) 52.45\$

d) 71.74\$

2. \$24 shirt; 6% tax

a) 19.26\$

b) 25.44\$

c) 52.45\$

d) 71.74\$

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

a) 19.26\$

b) 25.44\$

c) 52.45\$

d) 71.74\$

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)

a) 19.26\$
b) 25.44\$
c) 52.45\$
d) 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)

a) 79.82\$
b) 25.44\$
c) 52.45\$
d) 71.74\$

Question 7: Use proportional relationships to find the amount to pay for a tip and the amount of markup on items (page 90)

MCQ - Objective questions



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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

a) 342.37\$
b) 6.78\$
c) 77\$
d) 45.6\$

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.

a) 342.37\$
b) 6.78\$
c) 77\$
d) 45.6\$

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.

a) 342.37\$

b) 6.78\$

c) 77\$

d) 45.6\$

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

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

a) true

b) false

false; Sample answer: An item costs \$1,000 and you want to mark it up by 0.1%. Multiply \$1,000 by 0.001. The new price is \$1,000 + \$1, or \$1,001.

Question 8: Use proportional relationships to find the amount of discount or markdown (page 97)

MCQ - Objective questions



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Find the sale price to the nearest cent. Use any strategy.

1. \$140 coat; 10% discount

a) 126.00\$

b) 60.00\$

c) 276.25\$

d) 59.40\$

2. \$80 boots; 25% discount

a) 126.00\$

b) 60.00\$

c) 276.25\$

d) 59.40\$

3. \$325 tent; 15% discount

a) 126.00\$

b) 60.00\$

c) 276.25\$

d) 59.40\$

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)

a) 126.00\$

b) 60.00\$

c) 276.25\$

d) 59.40\$

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.

a) 24.70\$

b) 62.74\$

c) 375.15\$

d) 160.42\$

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.

a) 24.70\$

b) 62.74\$

c) 375.15\$

d) 160.42\$

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)

a) 24.70\$
b) 62.74\$
c) 375.15\$
d) 160.42\$

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)

a) 24.70\$
b) 62.74\$
c) 375.15\$
d) 160.42\$

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)

a) 47.89\$
b) 62.4\$
c) 75.15\$
d) 16.2\$

Question 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 (page 105)

MCQ - Objective questions



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

1. \$530, 6%, 1 year

a) 31.80\$

b) 84.00\$

c) 157.50\$

d) 46\$

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

a) 31.80\$

b) 84.00\$

c) 157.50\$

d) 46\$

3. \$750, 7%, 3 years

a) 31.80\$

b) 84.00\$

c) 157.50\$

d) 46\$

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)

- | |
|-------------|
| a) 31.80\$ |
| b) 84.00\$ |
| c) 157.50\$ |
| d) 46\$ |

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)

- | |
|-------------|
| a) 112.50\$ |
| b) 8.40\$ |
| c) 288.75\$ |
| d) 55.35\$ |

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)

a) 112.50\$

b) 8.40\$

c) 288.75\$

d) 55.35\$

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.

a) 112.50\$

b) 8.40\$

c) 288.75\$

d) 55.35\$

Question 10: Use proportional relationships to find the amount of commission earned on sales and the amount of fees for certain services (page 113)

MCQ - Objective questions



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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)

- | |
|-------------|
| a) 391\$ |
| b) 668.31\$ |
| c) 27.273\$ |
| d) 16.745\$ |

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)

- | |
|-------------|
| a) 391\$ |
| b) 668.31\$ |
| c) 27.273\$ |
| d) 16.745\$ |

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)

- | |
|-------------|
| a) 391\$ |
| b) 668.31\$ |
| c) 27,273\$ |
| d) 16.745\$ |

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)

a) 391\$
b) 668.31\$
c) 27.273\$
d) 16,745\$

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)

a) 20,000\$
b) 44.81\$
c) 27.273\$
d) 16.745\$

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)

a) 20.000\$
b) 44.81\$
c) 27.273\$
d) 16.745\$

Question 11: Use different methods,
including algebra tiles, number lines, or
absolute value, to add integers (page 137)

MCQ - Objective questions



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Mr. Aghead

Add.

1. $-3 + (-8)$

a) -11

b) -24

c) -26

d) -14

2. $-11 + (-13)$

a) -11

b) -24

c) -26

d) -14

3. $9 + (-35)$

a) -11

b) -24

c) -26

d) -14

4. $-28 + 14$

a) -11

b) -24

c) -26

d) -14

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

a) -17

b) 11

c) -40

d) -21

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

a) -17

b) 11

c) -40

d) -21

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

a) -17

b) 11

c) -40

d) -21

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)

a) -17

b) 11

c) -40

d) -21

Question 12: Use different methods, including algebra tiles, number lines, or the additive inverse, to subtract integers (page 147)

MCQ - Objective questions



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Subtract.

1. $9 - (-2)$

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a) 11

b) -30

c) 76

d) 14

2. $-20 - 10$

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a) 11

b) -30

c) 76

d) 14

3. $13 - (-63)$

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a) 11

b) -30

c) 76

d) 14

4. $28 - 14$

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a) 11

b) -30

c) 76

d) 14

5. $-10 - 0$

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a) -10

b) -66

c) -6

d) -15

6. $-33 - 33$

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a) -10

b) -66

c) -6

d) -15

7. $-18 - (-12)$

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a) -10
b) -66
c) -6
d) -15

8. $-28 - (-13)$

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a) -10
b) -66
c) -6
d) -15

9. $-18 - (-40)$

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a) 22
b) 66
c) -6
d) -15

Question 13: Use number lines and mathematical properties to multiply integers (Page 157)

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Multiply.

1. $4(-7)$

a) -28

b) -70

c) -108

d) 48

2. $-14(5)$

a) -28

b) -70

c) -108

d) 48

3. $9(-12)$

a) -28

b) -70

c) -108

d) 48

4. $-6(-8)$

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a) -28

b) -70

c) -108

d) 48

5. $-10(-10)$

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a) 100

b) 143

c) -140

d) 168

6. $-11(-13)$

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a) 100

b) 143

c) -140

d) 168

7. $7(-5)(4)$

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a) 100
b) 143
c) -140
d) 168

8. $(-8)(-7)(3)$

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a) 100
b) 143
c) -140
d) 168

9. $-2(-12)(-8)$

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a) -192
b) 192
c) -140
d) 168

Question 14: Use the order of integer operations to evaluate expressions (page: 169)

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Evaluate each expression.

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

a) -39

b) -11

c) 22

d) 72

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

a) -39

b) -11

c) 22

d) 72

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

a) -39

b) -11

c) 22

d) 72

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

a) -39

b) -11

c) 22

d) 72

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

a) -105

b) -54

c) 22

d) 72

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

a) -105

b) -54

c) 22

d) 72

Question 15: Convert fractions to decimal equivalents using division (page: 183)

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Mr. Ahead

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

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

a) 0.625; terminating

b) -0.75; terminating

c) $0.\bar{2}$; non-terminating

d) $0.\bar{8}\bar{3}$ non-terminating

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

a) 0.625; terminating

b) -0.75; terminating

c) $0.\bar{2}$; non-terminating

d) $0.\bar{8}\bar{3}$ non-terminating

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

a) 0.625; terminating

b) -0.75; terminating

c) $0.\bar{2}$; non-terminating

d) $0.\bar{8}\bar{3}$ non-terminating

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

a) 0.625; terminating

b) -0.75; terminating

c) $0.\bar{2}$; non-terminating

d) $0.\bar{8}\bar{3}$ non-terminating

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

a) 0.46; terminating

b) -0.8; terminating

c) $0.\bar{2}$; non-terminating

d) $0.\bar{83}$ non-terminating

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

a) 0.46; terminating

b) -0.8; terminating

c) $0.\bar{2}$; non-terminating

d) $0.\bar{83}$ non-terminating

Write each decimal as a fraction or mixed number in simplest form.

7. $0.\bar{8}$

a) $\frac{8}{9}$

b) $\frac{2}{11}$

c) $-1\frac{5}{9}$

d) $4\frac{5}{11}$

8. $-0.\overline{18}$

a) $\frac{8}{9}$

b) $-\frac{2}{11}$

c) $-1\frac{5}{9}$

d) $4\frac{5}{11}$

9. $-1.\overline{5}$

a) $\frac{8}{9}$

b) $\frac{2}{11}$

c) $-1\frac{5}{9}$

d) $4\frac{5}{11}$

10. $4.\overline{45}$

a) $\frac{8}{9}$

b) $-\frac{2}{11}$

c) $-1\frac{5}{9}$

d) $4\frac{5}{11}$

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

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

a) 0.3; terminating

b) -0.3; terminating

c) $0.0\overline{3}$; non-terminating

d) $-0.\overline{03}$ non-terminating

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

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

a) 0.3; terminating

b) -0.3; terminating

c) $0.0\overline{3}$; non-terminating

d) $-0.\overline{03}$ non-terminating

12. Jessica is making matching book bags for her 4 friends. Each book bag needs $1\frac{7}{8}$ yards of fabric. Which of the fabrics shown in the table can Jessica use to make all the book bags for her friends?

Fabric	Amount of Fabric Available (yd)
Moons and Stars	$7\frac{1}{2}$
Softballs	7.4
Stripes	$7\frac{3}{5}$
Tie-Dye	7.9

a) Moons and Stars

b) Stripes

c) all of the above correct

d) all of the above wrong

a) Tie-Dye

b) Softballs

c) all of the above correct

d) all of the above wrong

Question 16: Find the additive inverse
of a rational number (page: 195)

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Find the additive inverse of each rational number.

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

a) $\frac{1}{2}$

b) -0.25

c) $-\frac{9}{10}$

d) 0.4

2. 0.25

a) $\frac{1}{2}$

b) -0.25

c) $-\frac{9}{10}$

d) 0.4

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

a) $\frac{1}{2}$

b) -0.25

c) $-\frac{9}{10}$

d) 0.4

4. -0.4

a) $\frac{1}{2}$

b) -0.25

c) $-\frac{9}{10}$

d) 0.4

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.

a) 37.20\$

b) 34.70\$

c) 31.24\$

d) 85.12\$

Add or Subtract. Write in simplest form.

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

a) $2\frac{2}{3}$ or $2.\bar{6}$

b) $1\frac{17}{24}$ or $1.708\bar{3}$

c) -3.45 or $-3\frac{9}{20}$

d) $4\frac{13}{30}$ or $4.4\bar{3}$

Question 17: Add rational numbers (page 195)

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Add or Subtract. Write in simplest form.

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

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a) $2\frac{2}{3}$ or $2.\bar{6}$

b) $1\frac{17}{24}$ or $1.708\bar{3}$

c) -3.45 or $-3\frac{9}{20}$

d) $4\frac{13}{30}$ or $4.4\bar{3}$

8. $-3.7 + \frac{1}{4}$

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a) $2\frac{2}{3}$ or $2.\bar{6}$

b) $1\frac{17}{24}$ or $1.708\bar{3}$

c) -3.45 or $-3\frac{9}{20}$

d) $4\frac{13}{30}$ or $4.4\bar{3}$

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

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a) $2\frac{2}{3}$ or $2.\bar{6}$

b) $1\frac{17}{24}$ or $1.708\bar{3}$

c) -3.45 or $-3\frac{9}{20}$

d) $4\frac{13}{30}$ or $4.4\bar{3}$

10. $-1\frac{1}{4} + 0.75 + 0.45$

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a) -0.05 or $-\frac{1}{20}$

b) 1.45 or $1\frac{9}{20}$

c) 8.27 or $8\frac{27}{100}$

d) $11\frac{1}{6}$ or $11.1\bar{6}$

11. $-2.45 - (-3.9)$

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a) -0.05 or $-\frac{1}{20}$

b) 1.45 or $1\frac{9}{20}$

c) 8.27 or $8\frac{27}{100}$

d) $11\frac{1}{6}$ or $11.1\bar{6}$

12. $5.47 - (-2.8)$

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a) -0.05 or $-\frac{1}{20}$

b) 1.45 or $1\frac{9}{20}$

c) 8.27 or $8\frac{27}{100}$

d) $11\frac{1}{6}$ or $11.1\bar{6}$

13. $7\frac{5}{12} - \left(-3\frac{3}{4}\right)$

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a) -0.05 or $-\frac{1}{20}$

b) 1.45 or $1\frac{9}{20}$

c) 8.27 or $8\frac{27}{100}$

d) $11\frac{1}{6}$ or $11.1\bar{6}$

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

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a) $-3\frac{1}{24}$ or $-3.041\bar{6}$

b) 1.45 or $1\frac{9}{20}$

c) 8.27 or $8\frac{27}{100}$

d) $11\frac{1}{6}$ or $11.1\bar{6}$

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Question 18: Use the rules for multiplying integers to multiply rational numbers (page 211)

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Multiply or divide. Write the product or quotient in simplest form.

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

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a) $\frac{2}{5}$

b) $-3\frac{5}{7}$

c) $-7\frac{9}{16}$

d) $-\frac{2}{5}$ or -0.4

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

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a) $\frac{2}{5}$

b) $-3\frac{5}{7}$

c) $-7\frac{9}{16}$

d) $-\frac{2}{5}$ or -0.4

3. $1\frac{1}{10} \left(-6\frac{7}{8}\right)$

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a) $\frac{2}{5}$

b) $-3\frac{5}{7}$

c) $-7\frac{9}{16}$

d) $-\frac{2}{5}$ or -0.4

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

a) $\frac{2}{5}$

b) $-3\frac{5}{7}$

c) $-7\frac{9}{16}$

d) $-\frac{2}{5}$ or -0.4

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

a) $1\frac{10}{21}$

b) -4 or $-\frac{4}{1}$

c) $-7\frac{9}{16}$

d) $-\frac{2}{5}$ or -0.4

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

a) $-1\frac{1}{2}$

b) -6 or $-\frac{6}{1}$

c) $-7\frac{9}{16}$

d) $-\frac{2}{5}$ or -0.4

Question 19: Use the rules for dividing integers
to divide rational numbers (page 219)

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Divide. Write your answer in simplest fraction form.

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

a) - 4

b) $\frac{3}{2}$

c) $-\frac{3}{2}$

d) $-\frac{9}{14}$

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

a) - 4

b) $\frac{3}{2}$

c) $-\frac{3}{2}$

d) $-\frac{9}{14}$

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

a) - 4

b) $\frac{3}{2}$

c) $-\frac{3}{2}$

d) $-\frac{9}{14}$

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

a) - 4

b) $\frac{3}{2}$

c) $-\frac{3}{2}$

d) $-\frac{9}{14}$

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

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

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

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

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a) $\frac{4}{5}$

b) $-11\frac{55}{64}$

c) $-2\frac{11}{17}$

d) $20\frac{1}{3}$

a) $\frac{4}{5}$

b) $-11\frac{55}{64}$

c) $-2\frac{11}{17}$

d) $20\frac{1}{3}$

a) $\frac{4}{5}$

b) $-11\frac{55}{64}$

c) $-2\frac{11}{17}$

d) $20\frac{1}{3}$

a) $\frac{4}{5}$

b) $-11\frac{55}{64}$

c) $-2\frac{11}{17}$

d) $20\frac{1}{3}$

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

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a) $-\frac{16}{7}$

b) $\frac{1}{3}$

c) -6

d) -15

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

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a) $-\frac{16}{7}$

b) $\frac{1}{3}$

c) -6

d) -15

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

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a) $-\frac{16}{7}$

b) $\frac{1}{3}$

c) -6

d) -15

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

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a) $-\frac{16}{7}$

b) $\frac{1}{3}$

c) -6

d) -15

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Question 20: Add, subtract, multiply, and divide rational numbers (page 225)

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

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

a) -2.55 or $-2\frac{11}{20}$

b) 0.6375 or $\frac{51}{80}$

c) -1.825 or $-1\frac{33}{40}$

d) 2.7 or $2\frac{7}{10}$

2. $a + b + cd$

a) -2.55 or $-2\frac{11}{20}$

b) 0.6375 or $\frac{51}{80}$

c) -1.825 or $-1\frac{33}{40}$

d) 2.7 or $2\frac{7}{10}$

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

a) -2.55 or $-2\frac{11}{20}$

b) 0.6375 or $\frac{51}{80}$

c) -1.825 or $-1\frac{33}{40}$

d) 2.7 or $2\frac{7}{10}$

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

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a) -2.55 or $-2\frac{11}{20}$

b) 0.6375 or $\frac{51}{80}$

c) -1.825 or $-1\frac{33}{40}$

d) 2.7 or $2\frac{7}{10}$

5. $d^2 - b$

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a) 0.5 or $\frac{1}{2}$

b) 0.078125 or $\frac{5}{64}$

c) -1.825 or $-1\frac{33}{40}$

d) 2.7 or $2\frac{7}{10}$

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

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a) 0.5 or $\frac{1}{2}$

b) 0.078125 or $\frac{5}{64}$

c) -1.825 or $-1\frac{33}{40}$

d) 2.7 or $2\frac{7}{10}$

Question 21: Determine whether two quantities shown in a table are in a proportional relationship by testing for equivalent (page 29)

Free response questions (FRQ)



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

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

(Example 1)

Lunches Bought	1	2	3	4
Total Cost (\$)				

Lunches Bought	1	2	3	4
Total Cost (\$)	2.50	5.00	7.50	10.00

yes; The ratios between the quantities are all equal and have a unit rate of \$2.50 per lunch.

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				

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

yes; The ratios between the quantities are all equal and have a unit rate of 1.5 blocks per minute.

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 (\$)				

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

no; The ratios between the quantities are not equal.

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 (\$)				

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

no; The ratios between the quantities
are not equal.

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)

0.50

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

1.75

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

3.1

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

9.1

Question 22: Use proportional relationships to solve percent of change problems (page 71)

Free response questions (FRQ)



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

1. 8 feet to 10 feet

25%; increase

2. 62 trees to 31 trees

50%; decrease

3. 136 days to 85 days

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)

32%

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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)

48.5%

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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)

30%

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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)

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. (Example 2)

30.6%

Question 23:

Use number lines and mathematical properties to multiply integers (page 157)

Use a related multiplication sentence to divide integers (page 165)

Free response questions (FRQ)



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Multiply

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

(Example 4)

80

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

(Example 4)

70

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

(Example 6)

-224

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

756

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

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

-16

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

4

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

-4

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

10. $\frac{f}{g}$

-3

11. $\frac{h}{f}$

3

12. $\frac{h}{g}$

-9

Question 24: Find the additive inverse of a rational number (page 195)

Free response questions (FRQ)



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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.

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\$37.20

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.

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Question 25: Subtract rational numbers by adding the additive inverse (Page 197 & 201)

Free response questions (FRQ)



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Learn Subtract Rational Numbers

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

 **Go Online** Watch the animation to see how to subtract a mixed number and a decimal.

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.	$= 3\frac{24}{15} + \left(-2\frac{10}{15}\right)$
4. Simplify if necessary.	$= 1\frac{14}{15}$

Multiply or divide. Write the product or quotient in simplest form.

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

$\frac{2}{5}$

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

$-3\frac{5}{7}$

3. $1\frac{1}{10} \left(-6\frac{7}{8}\right)$

$-7\frac{9}{16}$

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

$-\frac{2}{5}$ or -0.4

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

-4 or $-\frac{4}{1}$

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

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

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

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

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

$1\frac{10}{21}$

9. $-5\frac{1}{4} \div \frac{7}{8}$

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

Evaluate each expression if $x = -\frac{2}{3}$, $y = 0.6$, and $z = -1\frac{7}{8}$. Write the product in simplest form. (Examples 4 and 5)

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

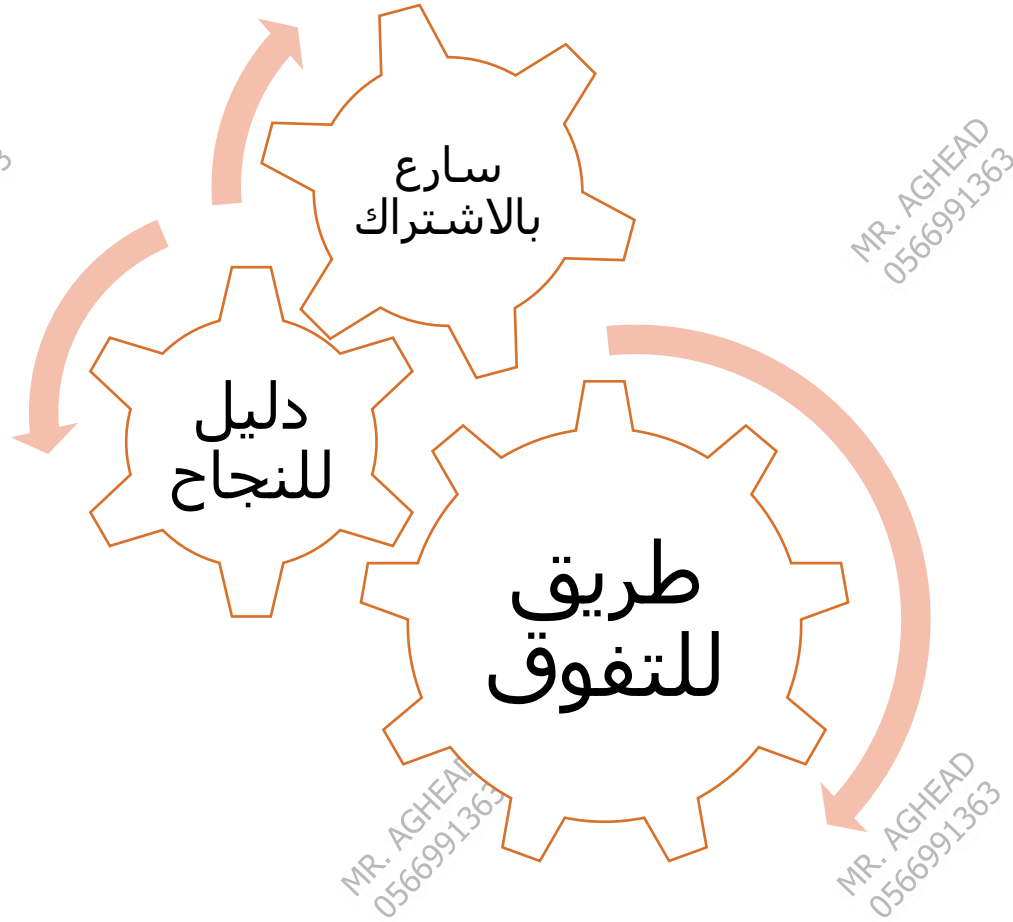
$-\frac{1}{10}$ or -0.1

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

-1 or $-\frac{1}{1}$

12. $-xyz$

$-\frac{3}{4}$ or -0.75



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