

TEST NAME: **7th**  
TEST ID: **3940**  
GRADE: **SEVENTH GRADE-EIGHTH GRADE**  
SUBJECT: **Mathematics**  
TEST CATEGORY: **Common Classroom**

Student: \_\_\_\_\_

Class: \_\_\_\_\_

Date: \_\_\_\_\_

1. Jeff hikes  $\frac{1}{2}$  mile every  $\frac{1}{4}$  hour. Lisa hikes  $\frac{1}{3}$  mile every  $\frac{1}{6}$  hour.

**Part A:** Which hiker walks farther in one hour? *Show all work.*

*Answer:* \_\_\_\_\_

**Part B:** Who walks faster, Jeff or Lisa? Justify your reasoning.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

2. Jason bought a jacket on sale for 50% off the original price and another 25% off the discounted price. If the original cost of the jacket was \$88, what was the final sale price that Jason paid for the jacket?

- A. \$22
- B. \$33
- C. \$44
- D. \$66

3. Temperatures were taken after every 10 minutes for 4 experiments.

Experiment 1	52°	26°	13°
Experiment 2	28°	56°	84°
Experiment 3	14°	28°	56°
Experiment 4	67°	54°	41°

Which of the experiments' temperatures have a proportional relationship with time?

- A. Experiment 1
  - B. Experiment 2
  - C. Experiment 3
  - D. Experiment 4
4. Weights of different materials were taken for three lengths: 6 inches, 12 inches, and 18 inches.

Material 1	15	30	60
Material 2	13	26	39
Material 3	31	62	93
Material 4	14	28	42

Which of the materials' weights does NOT have a proportional relationship with length?

- A. Material 1
- B. Material 2
- C. Material 3
- D. Material 4

5. It takes Wayne  $\frac{1}{10}$  hours to walk a  $\frac{1}{6}$  mile park loop. What is Wayne's unit rate, in miles per hour?

A.  $\frac{1}{10}$  mile per hour

B.  $1\frac{2}{3}$  miles per hour

C. 6 miles per hour

D. 60 miles per hour

6. If 6 muffins calls for 360 grams of oat flakes, how many grams are needed per muffin?

A. 56

B. 60

C. 72

D. 36

7. The Jackson family drove 496 miles in 8 hours. Which is the unit rate in fraction form?

A.  $\frac{496 \text{ miles}}{1 \text{ hour}}$

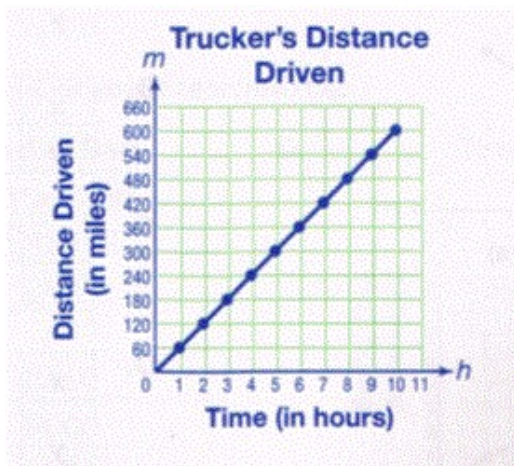
B.  $\frac{62 \text{ miles}}{1 \text{ hour}}$

C.  $\frac{1 \text{ mile}}{62 \text{ hours}}$

D.  $\frac{1 \text{ mile}}{496 \text{ hours}}$

8. A plane travels 2,395 miles in 5 hours. What is the plane's average speed in miles per hour?
- A. 749 mph
  - B. 479 mph
  - C. 2,395 mph
  - D. 5 mph
9. A job pays \$56 for 8 hours of work. How much money does the job pay per hour?
- A. \$7 per hour
  - B. \$8 per hour
  - C. \$9 per hour
  - D. \$56 per hour
10. Express 520 students for 13 teachers as a unit rate.
- A. 40 students/teacher
  - B. 533 students/teacher
  - C. 6760 students/teacher
  - D. 0.025 students/teacher
11. Kiran bought 6 yards of ribbon for \$3.90. Which ratio is proportional to 6 yards at \$3.90?
- A.  $\frac{\$1.36}{2 \text{ yards}}$
  - B.  $\frac{\$1.92}{3 \text{ yards}}$
  - C.  $\frac{\$2.64}{4 \text{ yards}}$
  - D.  $\frac{\$3.25}{5 \text{ yards}}$

12. The graph shows the distance that a trucker drives during a one-day job.



**Part A:** Does this graph show a proportional relationship? Explain your reasoning.

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**Part B:** If the relationship is proportional, what do the following points represent in this situation: (1,60) and (2,120)? Explain your reasoning.

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13. Amber rides 30 miles in 2 hours. Which equation shows the relationship between the distance,  $d$ , and the time,  $t$ , that she rides?

- A.  $d=2t$
- B.  $d=15t$
- C.  $d=30t$
- D.  $d=32t$

14. Currently 31 out of every 50 American adults drink coffee every day. In a town with a population of 7,500 adults, how many of these adults would you expect to drink coffee every day?

- A. 2,325 adults
- B. 9,300 adults
- C. 4,650 adults
- D. 12,096 adults

15. Staples has a calculator that is regularly priced \$20 and is now on sale for 40% off. Brain has a coupon for 10% off anything in the store. What is the sale price of the calculator?

- A. \$8
- B. \$10.80
- C. \$13.20
- D. \$12.00

16. It took 3.3 hours for Marianne to drive 178.2 miles. What was her average speed for the trip?

- A. 54 mi/h
- B. 554 mi/h
- C. 59.3 mi/h
- D. 60 mi/h

17. In a recipe for Double Chocolate Cookies every  $\frac{1}{2}$  cup of milk calls for 2 cups of chocolate. If the recipe were increased to include 4 cups of chocolate, how much milk would be needed? Explain your answer.

**Show your work.**

**Answer:** \_\_\_\_\_

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18. The students in Ms. Baca's art class were mixing yellow and blue paint. She told them that two mixtures will be the same shade of green if the blue and yellow paint are in the same ratio.

The table below shows the different mixtures of paint that the students make.

	A	B	C	D	E	F
Yellow	1 part	2 parts	3 parts	4 parts	5 parts	6 parts
Blue	2 part	3 parts	6 parts	6 parts	8 parts	9 parts

**Part A:** How many different shades of paint did the students make? Explain your reasoning.

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**Part B:** Write an equation that relates  $y$ , the number of parts of yellow paint, and  $b$ , the number of parts of blue paint for each of the different shades of paint the students made.

**Equation:** \_\_\_\_\_



19. Joe deposited \$2,000 into his savings account. The bank has a rate of 7% simple interest per year. How much interest did he earn in 5 years?
- A. \$140  
B. \$700  
C. \$2,700  
D. \$1,300
20. The function table shows the relationship between the cost and the number of ham sandwiches purchased at a deli.

Cost, $C$ (in dollars)	Number of Sandwiches, $n$
1	4
2	8
3	12
4	16
5	20

Which equation shows the relationship between the cost and the number of sandwiches purchased?

- A.  $C = n + 4$   
B.  $C = 4n$   
C.  $C = \frac{1}{4}n$   
D.  $C = 4n + 4$

21. A recipe calls for 14 cups of flour and 6 cups of sugar. Will the two recipes be proportional if the recipe decreases to 7 cups of flour and 3 cups of sugar? Explain how you got your answer.

**Show all work.**

**Answer:** \_\_\_\_\_

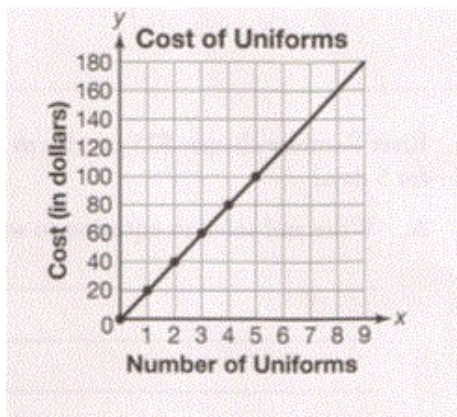
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22. The graph shows the relationship between the cost and the number of uniforms ordered by a sports team.



How much will it cost the team to order 8 uniforms?

- A. \$20
- B. \$140
- C. \$160
- D. \$180

23. Ignacio is going on vacation. He needs to drive 520 miles in 8 hours. What is his average speed in miles per hour?

- A 63 miles per hour
- B 65 miles per hour
- C 67 miles per hour
- D 69 miles per hour

24. Decide which is the better buy for a box of crackers:

32 ounces for \$1.92

26 ounces for \$1.56

- A 32-oz size
- B 26-oz size
- C Both cost the same per ounce.

25. Kalil's monthly salary is \$3,250, plus he earns 1.4% commission on his sales each month. Kalil's sales for July were \$51,000. What were his total earnings for July?

- A \$714
- B \$3,964
- C \$7,140
- D \$10,390

26. A bakery is selling 3 trays of muffins for \$24.00. If a customer wants to buy just one tray of muffins, how much would it cost?

**Part A:** How much would one tray cost?

**Part B:** If a \$16.00 cake were added to the single tray of muffins, what would the total be?

27. Which value would complete the table to make the relationship between the two quantities proportional?

$x$	$y$
1	22.4
2	44.8
3	?
4	89.6
5	112

- A. 44.8
- B. 67.2
- C. 89.6
- D. 56
28. Two containers filled with water are leaking. Container A leaks at a rate of  $\frac{2}{3}$  gallon every  $\frac{1}{4}$  hour. Container B leaks at a rate of  $\frac{3}{4}$  gallon every  $\frac{1}{3}$  hour. Which container is leaking water more rapidly? Justify your reasoning.

*Show all work.*

*Answer:* \_\_\_\_\_

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29. David is making his own strawberry yogurt. In David's mixture, the number of strawberries is proportional to the amount of milk, in cups. David uses 4 cups of milk for every 14 strawberries in his mixture.

Which equation represents the relationship between  $s$ , the number of strawberries, and  $m$ , the number of cups of milk he uses?

A.  $s = \frac{1}{10} m$

B.  $s = \frac{7}{2} m$

C.  $s = \frac{2}{5} m$

D.  $s = \frac{9}{2} m$

30. Angel and Jayden were at track practice. The track is  $\frac{2}{5}$  kilometers around.

- Angel ran 1 lap in 2 minutes.
- Jayden ran 3 laps in 5 minutes.

**Part A:** How many minutes does it take Angel to run one kilometer? How many minutes does it take Jayden to run one kilometer?

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**Part B:** How far does Angel run in one minute? How far does Jayden run in one minute?

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**Part C:** Who is running faster? Explain your reasoning.

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31. While on vacation, a group can rent bicycles and scooters by the week. They get a reduced rental rate if they rent 5 bicycles for every 2 scooters rented. The reduced rate per bicycle is \$15.50 per week and the reduced rate per scooter is \$160 per week. The sales tax on each rental is 12%.

The group has \$1600 available to spend on bicycle and scooter rentals. What is the greatest number of bicycles and the greatest number of scooters the group can rent if the ratio of bicycles is 5:2? Justify your reasoning. **Show all work.**

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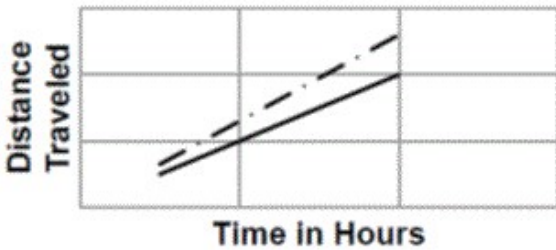
32. Jack and Jill raced cross-country on motor bikes. Jack drove 325 miles in 5 hours; Jill took  $6\frac{1}{2}$  hours to travel the same distance as Jack.

**Part A:** Compute the unit rates that describe Jack's average driving speed and Jill's average driving speed. Show how you made your decisions.

**Jack:** \_\_\_\_\_

**Jill:** \_\_\_\_\_

**Part B:** A portion of the graph of Jack and Jill's race appears below. Identify which line segment belongs to Jack and which belongs to Jill. Explain in writing how you made your decisions.



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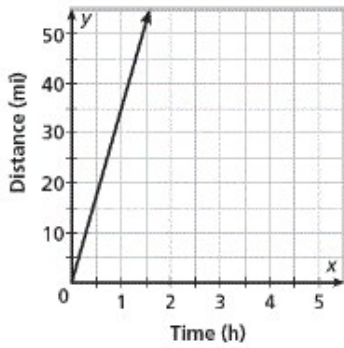
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33. A \$60 sweater is on sale for 25% off. There is an additional 10% discount offered if you sign up for a credit card. What is the sale price of the sweater if you sign up for a credit card?
- A. \$19.50
  - B. \$39
  - C. \$40.50
  - D. \$21

34. The graph shows the distance a boat is traveling over time. Does the boat travel at a constant or variable speed? How fast is the boat traveling?



- A. constant speed; 17.5 mi/h
- B. constant speed; 70 mi/h
- C. constant speed; 35 mi/h
- D. variable speed; 70 mi/h
35. A television regularly selling for \$500 is marked down to \$300!
- What is the percent of the discount?
- Show your work.
36. Nina types 126 words in 3 minutes. Which equation shows the relationship between the number of words,  $w$ , and the time, in minutes,  $m$ , that she types?
- A.  $w = 3m$
- B.  $w = 42m$
- C.  $w = 126m$
- D.  $w = 378m$



37. Lauren jogs at a rate of 2 miles every  $\frac{2}{5}$  hour. What is her unit rate?

- A. 0.4 mi/h
- B. 2 mi/h
- C. 5 mi/h
- D. 10 mi/h

38. The shipping charge on a 30-pound package is \$6. How much would the shipping cost be on a 50-pound package?

- A. \$10
- B. \$5
- C. \$24
- D. \$20

39. Which table shows pairs of values that are **not** in a proportional relationship?

A.

x	1	2	3	4
y	14	28	42	56

B.

x	1	2	3	4
y	8	16	32	64

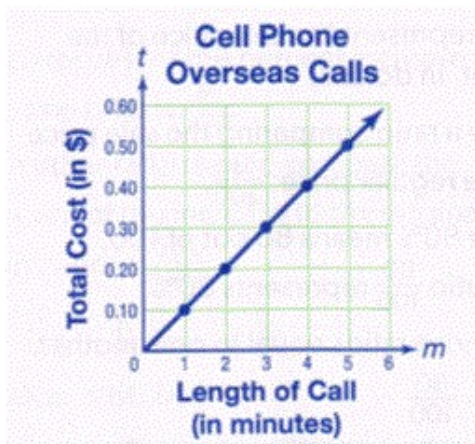
C.

x	1	2	3	4
y	3	6	9	12

D.

x	1	2	3	4
y	$\frac{1}{6}$	$\frac{1}{3}$	$\frac{1}{2}$	$\frac{2}{3}$

40. You can get 640 calories from eating 8 apples. How many calories can you get from eating 1 apple?
- A. 80 calories per apple
  - B. 83 calories per apple
  - C. 82 calories per apple
  - D. 81 calories per apple
41. A new school has a teacher-to-student ratio of 2:15. The school has 42 teachers. How many students are there in the school?
- A. 84
  - B. 315
  - C. 630
  - D. 294
42. The point  $(1.5, 0.15)$  is on the graph below. What does that point represent?



- A. A call that lasts 0.15 minute will cost \$1.50.
- B. A call that lasts 1.5 minutes will cost \$0.15.
- C. The unit rate is \$0.15 per minute.
- D. The unit rate is \$1.50 per minute.

43. Four different stores are having a sale. The signs below show the discounts available at each of the four stores.

<b>Two for the price of one</b>	<b>Buy one and get 25% off the second</b>
<b>Buy two and get 50% off the second</b>	<b>Three for the price of two</b>

- a. Which of these four different offers gives the biggest percentage reduction? Explain your reasoning clearly.
- b. Which of these four different offers gives the smallest percentage price reduction? Explain your reasoning clearly.

44. A recipe for applesauce calls for  $\frac{1}{2}$  cup of honey. The recipe makes 5 servings. How many cups of honey are needed to make 20 servings?

A 2 cups

B.  $1\frac{1}{6}$  cups

C.  $1\frac{1}{3}$  cups

D.  $2\frac{2}{3}$  cups

45. Determine whether the proportion  $\frac{2.1}{1.1} = \frac{1.2}{2.7}$  is true.

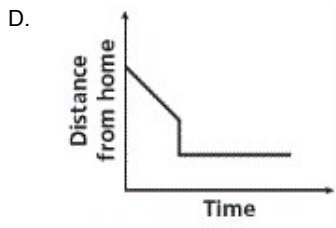
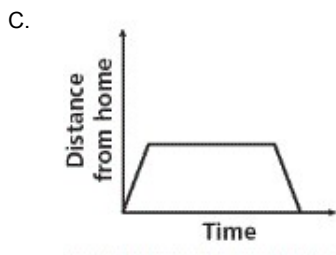
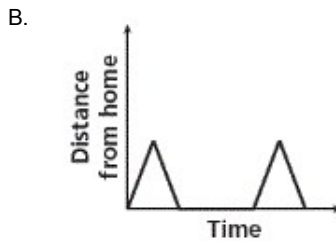
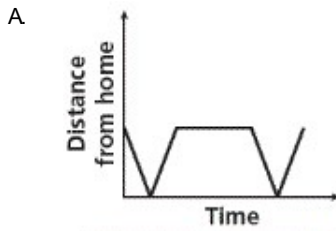
A True

B. False

46. In chemistry, Bob records the volume of a liquid as 13.3 ml. The actual volume is 13.6 ml. What is his percent error? Round to the nearest percent.

$$\text{percent error} = \frac{\text{amount of change}}{\text{actual value}} \times 100$$

- A. 2%  
B. 20%  
C. 0.02%  
D. 0.2%
47. Gloria drives her daughter to school in the morning and then comes back home. She stays home until she has to go to pick up her daughter from school, and then they both return home again. Which graph best shows the situation?



48. Write the ratio \$28 to \$34 as a fraction in simplest form.

A.  $\$ \frac{14}{17}$

B.  $\$ \frac{28}{17}$

C.  $\$ \frac{17}{28}$

D.  $\$ \frac{17}{14}$

49. Two pounds of cashews cost \$5, 3 pounds of cashews cost \$7.50, and 8 pounds of cashews cost \$20.

**Part A:** Show that the relationship between the number of pounds of cashews and the cost is a proportional relationship.

**Part B:** Write an equation for the relationship.

*Equation:* \_\_\_\_\_

**Part C:** What is the unit cost for the cashews? How does the unit cost appear in your equation?

*Answer:* \_\_\_\_\_

**Part D:** How much would 6 pounds of cashews cost? Explain your reasoning.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

50. A math tutor charges \$30 for a consultation, and then \$25 per hour.

An online tutoring service charges \$30 per hour.

**Part A:** Does either service represent a proportional relationship between time and cost? Explain your reasoning and include equations representing the costs of both services in your explanation.

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**Part B:** Which service is a better deal for 4 hours of tutoring? Explain.

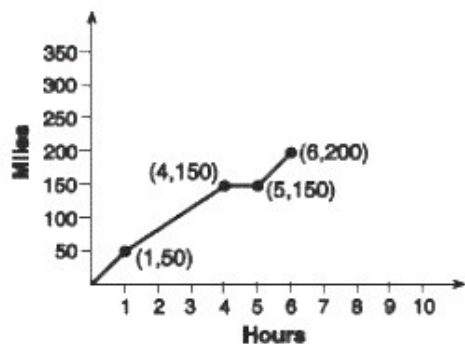
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51. Last summer, a family took a trip to a beach that was about 200 miles away from their home. The graph below shows the distance driven, in miles, and the time, in hours, taken for the trip.



What was their average speed from hour 1 to hour 4?

- A. 25 miles per hour
- B.  $33\frac{1}{3}$  miles per hour
- C.  $66\frac{2}{3}$  miles per hour
- D. 100 miles per hour
52. Determine whether the proportion  $\frac{25}{5} = \frac{40}{8}$  is true.

- A. True
- B. False

53. The table below shows a proportional relationship. One of the cells of the table is covered by a drop of ink. What value is covered by the ink?

Time (Sec)	3	5	11	17
Distance (ft)	10.2	17		57.8

- A. 3.4
- B. 18.2
- C. 23
- D. 37.4
54. BeatStreet, TunesTown, and MusicMind are music companies. BeatStreet offers to buy 1.5 million shares of TunesTown for \$561 million. At the same time, MusicMind offers to buy 1.5 million shares of TunesTown at \$373 per share.

**Part A:** Who would get the better deal, BeatStreet or MusicMind? Explain your reasoning.

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**Part B:** What is the total price difference?

**Answer:** \_\_\_\_\_



55. A factory worker can package 150 games in 15 minutes. How many games can he package per minute?

- A. 20
- B. 135
- C. 8.33
- D. 10

56. A recipe for whole grain rolls calls for  $\frac{3}{4}$  cup of rye flour. The recipe makes 6 rolls. How many cups of rye flour are needed to make 32 rolls?

- A.  $3\frac{1}{4}$  cups
- B. 4 cups
- C.  $4\frac{3}{4}$  cups
- D. 8 cups

57. Daniel bought 2 pounds of mixed nuts for \$7.18. Which ratio is proportional to 2 pounds at \$7.18?

- A.  $\frac{\$10.77}{3 \text{ pounds}}$
- B.  $\frac{\$10.83}{3 \text{ pounds}}$
- C.  $\frac{\$11.18}{4 \text{ pounds}}$
- D.  $\frac{\$14.20}{4 \text{ pounds}}$

58. Sean paid \$43.08 for 3 CDs. All 3 CDs were the same price. How much did each CD cost?

- A \$11.36
- B \$14.36
- C \$40.08
- D \$46.08

59. Express 1796 miles in 40 hours as a unit rate.

- A 1756 mi/hr
- B 44.9 mi/hr
- C 449 mi/hr
- D 0.022 mi/hr

60. Find an equivalent ratio to  $\frac{12}{60}$ .

- A  $\frac{2}{3}$
- B  $\frac{4}{5}$
- C  $\frac{1}{5}$
- D  $\frac{3}{8}$

61. Chris borrowed \$2,000 from the bank at the rate of 12% simple interest per year. If he makes no payments, what is the total amount Chris will have to repay the bank after 5 years?

- A. \$240
- B. \$1,200
- C. \$3,240
- D. \$3,200

62. After eating at your favorite restaurant, you know that the bill before tax is \$52.60 and that the sales tax rate is 8%. You decide to leave a 20% tip for the waiter based on the pre-tax amount.

**Part A:** How much should you leave for the waiter? Show work to support your answer.

**Answer:** \_\_\_\_\_

**Part B:** How much will the total bill be, including tax and tip? Show work to support your answer.

**Answer:** \_\_\_\_\_

63. The percentage discount at a store is determined using the table below.

**Sale Discounts**

Total Purchases	Discount
less than \$50	25%
\$50 to \$100	30%
over \$100	35%

Thomas bought 3 shirts that cost \$25 each before the discount. What was his total after the discount?

- A. \$45.00
- B. \$48.75
- C. \$52.50
- D. \$56.25

64. On a map with a scale factor of 1 in: 60 miles Staten Island, NY and Atlantic City, NJ are 3 inches apart. How many miles are they apart? Explain your answer.

*Show your work.*

*Answer* \_\_\_\_\_

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65. If Sam makes \$116.25 for 15 hours of tutoring how much money does she make per hour?

- A. \$7.25
- B. \$8.00
- C. \$7.75
- D. \$77.50

66. The data set below represents direct variation. Identify the constant of proportionality.

$x$	1	2	3	4	5	6	7
$y$	$\frac{9}{2}$	9	$\frac{27}{2}$	18	$\frac{45}{2}$	27	$\frac{63}{2}$

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

B. 9

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

D. 2

67. Jessica went shopping for a new watch. She found a watch that was originally priced at \$50 on sale for \$40. What percent had the watch been marked down?

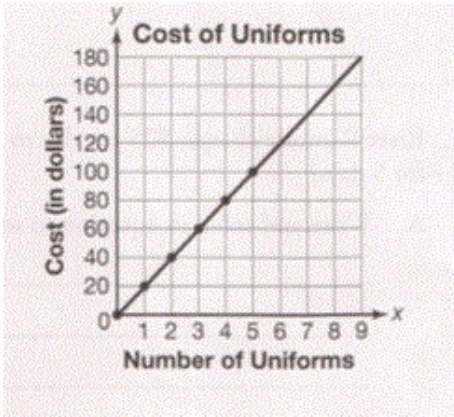
A. 10%

B. 20%

C. 25%

D. 40%

68. The graph shows the relationship between the cost and the number of uniforms ordered by a sports team.



Which equation shows the relationship between the number of uniforms,  $x$ , and the cost,  $y$ ?

- A.  $y = 20x$
- B.  $y = 10x$
- C.  $y = 2x$
- D.  $y = x$
69. The manager of a sporting goods store raises the price of a basketball from \$16 to \$18. What is the percent increase?
- A. 1.25%
- B. 2%
- C. 11.1%
- D. 12.5%
70. Grant worked 6 hours and packed 96 cartons of books. At this rate, how many cartons can he pack in 10 hours?
- A. 160 cartons
- B. 157 cartons
- C. 156 cartons
- D. 162 cartons

71. Joe's Rent-a-Car rents cars for a price of \$212 for 4 days. What proportion can be used to find the cost of renting a car for 10 days?

A.  $\frac{212}{10} = \frac{n}{4}$

B.  $\frac{212}{4} = \frac{n}{10}$

C.  $\frac{212}{10} = \frac{4}{n}$

D.  $\frac{10}{4} = \frac{212}{n}$

72. The standard dose of medicine for a dog is 10 grams for every 15 pounds of body weight. What is the standard dose for a dog that weighs 120 pounds?

A. 76 g

B. 78 g

C. 80 g

D. 82 g

73. A jumbo jet can make a 3,206-mile flight in 7 hours. What is the jet's average rate of speed per hour?

A. 450 mph

B. 458 mph

C. 45 mph

D. 48 mph

74. It takes Joaquin  $\frac{1}{5}$  hour to hike  $\frac{1}{4}$  mile. What is Joaquin's unit rate, in miles per hour?

A.  $\frac{1}{20}$  miles per hour

B.  $1\frac{1}{4}$  miles per hour

C. 2 miles per hour

D. 20 miles per hour

75. Katie works in a shoe store where she is paid \$150 weekly and a 13% commission on her sales. In January her sales total was \$3740. How much did Katie earn for the four weeks in January?

A. \$600

B. \$4226

C. \$486.20

D. \$1086.20



76. What is the unit rate of speed for this train?



- A. 1 mile per hour
- B. 45 miles per hour
- C. 90 miles per hour
- D. 180 miles per hour

77. A recipe for applesauce calls for  $\frac{1}{3}$  cup of honey. The recipe makes 8 servings. How many cups of honey are needed to make 20 servings?

- A.  $\frac{5}{6}$  cup
- B.  $1\frac{1}{6}$  cups
- C.  $1\frac{1}{3}$  cups
- D.  $2\frac{2}{3}$  cups

78. A candle crafter packs 180 candles in 5 boxes. Each box holds the same number of candles. Which equation shows the relationship between the number of boxes,  $b$ , and the number of candles,  $n$ ?
- A.  $n=5b$
  - B.  $n=24b$
  - C.  $n=36b$
  - D.  $n=900b$
79. Harriet paid \$349.65 for 7 fruit trees. If each of the trees cost the same, what is the cost for one tree?
- A. \$58.27
  - B. \$49.95
  - C. \$41.09
  - D. \$49.90
80. Stan's Sweater Superstore has a 30% off sale. This week only, everything in the store is marked down an additional 10% off the sale price!
- Suppose Charles wants to buy a sweater regularly priced at \$50. How much will he pay? Show your mathematical reasoning.

81. Daniella's birthday will cost \$50 for 30 guests. How much will the party cost her if there are 45 guests? Explain how you got your answer.

**Show all work.**

**Answer:** \_\_\_\_\_

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82. The function table shows the relationship between the cost and the number of ham sandwiches purchased at a deli.

Number of Sandwiches, $n$	Cost, $C$ (in dollars)
1	4
2	8
3	12
4	16
5	20

Which equation shows the relationship between the cost and the number of sandwiches purchased?

A.  $C = n + 4$

B.  $C = 4n$

C.  $C = \frac{1}{4}n$

D.  $C = 4n + 4$

83. Serena, Alyssa and Katie have just finished lunch at the Rainforest Cafe. Their bill came to \$38.96. There is an 8% sales tax. The girls have decided to leave a tip of 15% on the total amount of the bill. How much money did the entire bill come to including the tip?
- A. \$48.39
  - B. \$42.08
  - C. \$45.27
  - D. \$48.37
84. Appliances at Discount City Store are on sale for 70% of the original price. Eli has a coupon for an 18% discount on the sale price. If the original price of a microwave oven is \$500, how much will Eli pay for the oven before tax?
- A. \$440
  - B. \$287
  - C. \$260
  - D. \$240

85. At Norma's Discount Superstore, all sweaters are on sale for 20% off the regular price.

**Part A:** Damien has a coupon for an additional 20% off the discounted price. How much will he pay for a sweater that regularly costs \$45?

**Answer:** \_\_\_\_\_

**Part B:** The following week, all sweaters are put on clearance at 40% off the regular price. Would Damien get a better deal by waiting for this sale? Justify your response.

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86. Sam's bill at a restaurant is \$12, and he leaves a 20% tip. What is the total bill including the tip?

- A. \$0.24
- B. \$2.40
- C. \$24
- D. \$14.40

87. Which of the following ratios are proportional?

A.  $\frac{2}{3} = \frac{3}{4}$

B.  $\frac{5}{6} = \frac{11}{2}$

C.  $\frac{6}{9} = \frac{9}{12}$

D.  $\frac{3}{5} = \frac{9}{15}$

88. Each yard of fabric costs \$4.35. A table shows the number of yards of fabric and the total cost of the fabric. Which of the following must be true about the data in the table?

- A. The ratio of the total cost to the number of yards is always 4.35.
- B. The ratio of the number of yards to the total cost is always 4.35.
- C. The total cost is always 4.35 greater than the number of yards.
- D. The number of yards is always 4.35 times the total cost.

89. An elevator moves at constant speed of 20 feet per second. Arturo correctly graphs this proportional relationship on a coordinate plane. Which of the following points lies on Arturo's graph?

- A. (0, 20)
- B. (20, 0)
- C. (1, 20)
- D. (20, 1)

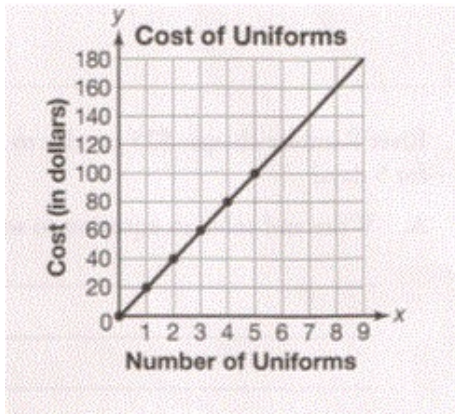
90. Decide which is the better buy for a container of frozen orange juice:

10 ounces for \$1.57

18 ounces for \$2.70

- A. Both cost the same per ounce.
- B. 18-oz size
- C. 10-oz size

91. The graph shows the relationship between the cost and the number of uniforms ordered by a sports team.



What is the unit cost of a uniform?

- A. \$2 per uniform
  - B. \$5 per uniform
  - C. \$10 per uniform
  - D. \$20 per uniform
92. If you can type 1080 words in 40 minutes, then how many words per minute can you type?
- A. 180 words/min
  - B. 31 words/min
  - C. 27 words/min
  - D. 9 words/min
93. David is making his own strawberry yogurt. In David's mixture, the number of strawberries is proportional to the amount of milk, in cups. David uses 4 cups of milk for every 14 strawberries in his mixture.

If the amount of strawberries increases to 28, how many cups of milk will David need?

**Show all work.**

94. The ordered pairs (2,30), (2.5,37.5) and (3,45) are points on a line that show a proportional relationship between the total distance bicycled after a certain number of hours. What ordered pair on that graph shows the unit rate? What does the unit rate represent?

- A. (2,30); it represents a distance of 30 miles.
- B. (15,1); it represents bicycling at 15 miles per hour.
- C. (1,15); it represents bicycling at 15 miles per hour.
- D. (0,0); it represents the initial distance before bicycling.

95. There were 24 boys and 20 girls in a chess club last year. This year the number of boys increased by 25% but the number of girls decreased by 10%.

**Part A:** Was there an increase or decrease in overall membership? Explain your reasoning.

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**Part B:** Find the overall percent change in membership of the club.

**Answer:** \_\_\_\_\_



96. Marie rode her bike 325 kilometers in 20 hours last month. Tamara rode her bike 255 kilometers in 15 hours last month. Are these rates proportional? Explain.

- A. No; Marie's rate is 16.25 km/h and Tamara's rate is 17 km/h.
- B. Yes; to find both rates, you need to divide the distance by the time.
- C. No; Marie's distance and time are greater than Tamara's distance and time.
- D. Yes; Marie's and Tamara's rates are almost the same.

97. A 1/2-pound bag of ground beef costs \$2.50

**Part A:** Find the unit cost per pound of beef. Show your work.

**Part B:** How much would you expect to pay for 8 pounds of ground beef? Show your work.

98. Jessica went shopping for a new watch. She found a watch that was originally priced at \$50 on sale for \$40. What is the percent of decrease?

- A. 10%
- B. 20%
- C. 25%
- D. 40%

99. The sales team at an electronics store sold 48 computers last month. The manager at the store wants to encourage the sales team to sell more computers and is going to give all the sales team members a bonus if the number of computers sold increases by 30% in the next month. How many computers must the sales team sell to receive the bonus? Explain your reasoning.

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100. A pair of jeans that normally cost \$50 is on sale this week for \$30. What is the percent of change?

- A. 4%
- B. 50%
- C. 30%
- D. 40%

101. On an architect's blueprint, 1 inch corresponds to 8 feet. If an exterior wall is 16 feet long, find how long the blueprint measurement should be. Write answer as mixed number if necessary.

- A.  $10\frac{2}{3}$  in.
- B. 2 in.
- C. 8 in.
- D. 5 in.

102. Ramon drove 145 miles in 2.5 hours. What was his speed in miles per hour?

- A. 48 miles per hour
- B. 52 miles per hour
- C. 58 miles per hour
- D. 362.5 miles per hour

103. Match the proportion with its solution.

$$\frac{3}{2} = \frac{t}{18}$$

- A. 27
- B. 2
- C. 5
- D.  $\frac{1}{3}$

104. Express the following as a proportion:

76 computers is to 190 students as 84 computers is to 210 students.

- A.  $\frac{76\text{computers}}{190\text{students}} = \frac{210\text{students}}{84\text{computers}}$
- B.  $\frac{76\text{computers}}{210\text{students}} = \frac{84\text{computers}}{190\text{students}}$
- C.  $\frac{190\text{students}}{76\text{computers}} = \frac{84\text{computers}}{210\text{students}}$
- D.  $\frac{76\text{computers}}{190\text{students}} = \frac{84\text{computers}}{210\text{students}}$

105. Michael is buying a pair of jeans that regularly cost \$40. They are on sale for 20% off. If the tax rate is 8%, what is the sale price of the jeans including tax?

- A. \$21.60
- B. \$34.56
- C. \$42.34
- D. \$44.16

106. A high school student created a remote control car that can travel 66 feet in 6 seconds. Express as a unit rate.

- A. 11 feet/sec
- B. 66 feet/sec
- C. 11 sec/feet
- D. 6 feet/sec