

Semester Exam 2018

Indicate the answer choice that best completes the statement or answers the question.

Divide. Write in simplest form.

- ___ 1. $\frac{1}{4} \div \frac{1}{2}$
 a. $\frac{3}{4}$
 b. $\frac{1}{2}$
 c. 2
 d. $\frac{1}{8}$

- ___ 2. $7\frac{1}{2} \div 2\frac{1}{2}$
 a. 3
 b. 10
 c. 5
 d. 4

Determine whether the relationship between the two quantities shown in each table are proportional by graphing on the coordinate plane. Explain your reasoning.

___ 3.

Popcorn	
Bags of Popcorn	Cost (\$)
0	0
1	4
2	8
3	12
4	16

- a. Yes, because the graph is a straight line through the origin.
 b. Yes, because the graph is not a straight line through the origin.
 c. No, because the graph of the line is not straight.
 d. No, because the graph of the line does not pass through the origin.

___ 4.

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

- a. No, because the graph of the line connecting the ordered pairs does not pass through the origin.
 b. Yes, the graph of the line connecting these ordered pairs does not pass through the origin.
 c. No, because the graph of the line connecting the ordered pairs passes through the origin.
 d. Yes, because the graph of the line connecting the ordered pairs does not pass through the origin.

Replace each \bigcirc with $>$, $<$, or $=$ to make a true sentence. Use a number line if necessary.

- ___ 5. $\frac{5}{6} \bigcirc \frac{1}{3}$
 a. \leq
 b. $>$
 c. $<$
 d. $=$

- ___ 6. $\frac{2}{7} \bigcirc \frac{1}{8}$
 a. $=$
 b. $>$
 c. \leq
 d. $<$

Find each unit rate. Round to the nearest hundredth if necessary.

- ___ 7. 88 students for 4 classes
a. 25 students per class
b. 25 classes per student
c. 22 students per class
d. 22 classes per student
- ___ 8. \$11.49 for 3 packages
a. \$4 per package
b. 3.83 package per dollar
c. \$0.26 per package
d. \$3.83 per package

Solve each proportion.

- ___ 9. $\frac{t}{6} = \frac{30}{36}$
a. 6
b. 7.2
c. 5
d. 180

Divide.

- ___ 10. $-64 \div (-8)$
a. 7
b. 8
c. -72
d. -8
- ___ 11. $-121 \div 11$
a. 11
b. -110
c. -11
d. 12

Find the constant rate of change for each table.

___ 12.

Number of Pounds of Ham	Cost (\$)
0	0
3	12
6	24
9	36

- a. \$12 per pound
b. \$0.25 per pound
c. \$3 per pound
d. \$4 per pound

Evaluate the expression.

- ___ 13. $|-5| + 8$
a. -13
b. 13
c. 3
d. -3
- ___ 14. $|-4| + 7 - |3|$
a. -8
b. 0
c. 8
d. 14

Write an equation for each problem. Then solve. Round to the nearest tenth if necessary.

- ___ 15. 55 is what percent of 100?
a. 55%
b. 5.5%
c. 50%
d. 181.8%

Simplify.

___ 16. **RUNNING** Johnathan can jog $3\frac{2}{5}$ miles in $\frac{7}{8}$ hour. Find his average speed in miles per hour.

a. $\frac{40}{119}$ mph

b. $\frac{35}{136}$ mph

c. $2\frac{39}{40}$ mph

d. $3\frac{31}{35}$ mph

___ 17. $\frac{4}{\frac{1}{5}}$

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

b. $1\frac{1}{4}$

c. $\frac{1}{20}$

d. 20

___ 18. $\frac{\frac{4}{15}}{\frac{2}{5}}$

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

b. $9\frac{3}{8}$

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

d. $\frac{8}{75}$

Find the total cost to the nearest cent.

___ 19. \$20 haircut; 10% tip

a. \$22.00

b. \$18.00

c. \$40.00

d. \$2.00

___ 20. \$18.00 breakfast; 7% tax

a. \$16.74

b. \$31.30

c. \$1.26

d. \$19.26

Write the fraction or mixed number as a decimal. Use bar notation if the decimal is a repeating decimal.

___ 21. $-\frac{3}{4}$

a. $-1.\bar{3}$

b. 0.75

c. -0.7

d. -0.75

___ 22. $\frac{121}{25}$

a. 4.84

b. 4.0

c. 0.206

d. 4.8

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

___ 23. 0.65

a. $\frac{13}{20}$

b. $\frac{13}{200}$

c. $\frac{13}{2}$

d. 65

Multiply.

___ 24. $9(-12)$

a. -3

b. -120

c. 108

d. -108

- ___ 25. $-6(-8)$
- 14
 - 54
 - 48
 - 48

FOSSILS Use the following information to solve.

In July, a paleontologist found 368 fossils at a dig. In August, she found about 14 fossils per day.

- ___ 26. Is the number of fossils the paleontologist found in August proportional to the number of days she spent looking for fossils that month?

Number of Days Looked	1	2	3	4
Number of Fossils Found	14	28	42	56

- No; The ratios of the number found to the number of days are not equal.
- Yes; The ratios of the number found to the number of days are all equal to 28 fossils per day.
- Yes; The ratios of the number found to the number of days are all equal to 14 fossils per day.
- Yes; The ratios of the number found to the number of days are all equal to 368 fossils per day.

Find the constant rate of change for each graph.

- ___ 27. **SEAGULLS** At 1 P.M., there were 16 seagulls on the beach. At 3 P.M., there were 40 seagulls. What is the constant rate of change?
- 24 seagulls per hour
 - 16 seagulls per hour
 - 12 seagulls per hour
 - 2 seagulls per hour

Add or subtract. Write in simplest form. (Note: this worksheet will not automatically grade answers in Short Answer mode. Answers will only be graded in Multiple Choice mode.)

- ___ 28. $6 - 2\frac{3}{4}$
- 4
 - $8\frac{3}{4}$
 - $3\frac{1}{4}$
 - $-16\frac{1}{2}$

- ___ 29. $3\frac{5}{8} - 2\frac{7}{8}$
- $\frac{3}{4}$
 - $\frac{1}{2}$
 - $5\frac{3}{4}$
 - $5\frac{1}{2}$

Add or subtract. Write in simplest form. (Note: this worksheet will not automatically grade answers in Short Answer mode. Answers will only be graded in Multiple Choice mode.)

- ___ 30. $\frac{4}{8} + \frac{5}{8}$
- $-\frac{1}{8}$
 - $1\frac{1}{8}$
 - $\frac{9}{16}$
 - $\frac{5}{16}$

- ___ 31. $\frac{2}{3} + \frac{3}{5}$
- a. $\frac{2}{5}$
 - b. $\frac{5}{8}$
 - c. $\frac{4}{15}$
 - d. $1\frac{4}{15}$

Find the number. Round to the nearest hundredth if necessary.

- ___ 32. 55% of 140
- a. 7.7
 - b. 254.54
 - c. 77
 - d. 770

Find the number. Round to the nearest hundredth if necessary.

- ___ 33. 0.25% of 150
- a. 3.8
 - b. 6
 - c. 0.38
 - d. 37.5

Find the number. Round to the nearest tenth if necessary.

- ___ 34. What percent of 65 is 13?
- a. 20%
 - b. 8.5%
 - c. 500%
 - d. 10%
- ___ 35. 14% of 81 is what number?
- a. 12
 - b. 17.3
 - c. 11.3
 - d. 113.4

- ___ 36. **WEDDING** Of the 125 guests invited to a wedding, 104 attended the wedding. What percent of the invited guests attended the wedding?
- a. 80%
 - b. 90%
 - c. 83.2%
 - d. 16.8%

Write an integer for each situation.

- ___ 37. 22°F below zero
- a. -2
 - b. 2
 - c. -22
 - d. 22
- ___ 38. a profit of \$12
- a. 120
 - b. 1.2
 - c. -12
 - d. 12

Find the percent of change. Round to the nearest whole percent if necessary. State whether the percent of change is an *increase* or *decrease*.

- ___ 39. 8 feet to 10 feet
- a. 25%; decrease
 - b. 20%; decrease
 - c. 20%; increase
 - d. 25%; increase
- ___ 40. \$180 to \$210
- a. 17; decrease
 - b. 17%; increase
 - c. 14%; decrease
 - d. 14%; increase

- ___ 41. **BASEBALL** A baseball player was at bat 473 times during the regular season. If he made a hit 31.5% of the times he was at bat, how many hits did he make during the regular season? Round to the nearest whole number if necessary.
- 135 hits
 - 149 hits
 - 324 hits
 - 1,450 hits

Find the sale price to the nearest cent.

- ___ 42. \$239 television; 10% discount
- \$23.90
 - \$262.90
 - \$225.00
 - \$215.10

Multiply. Write in simplest form.

- ___ 43. $2\frac{2}{7} \times 1\frac{1}{8}$
- 2
 - $2\frac{4}{7}$
 - $2\frac{5}{7}$
 - $2\frac{2}{63}$
- ___ 44. $8 \times 3\frac{3}{8}$
- 32
 - $\frac{27}{64}$
 - $2\frac{10}{27}$
 - 27

Subtract.

- ___ 45. $-33 - 33$
- 33
 - 0
 - 66
 - 66

- ___ 46. $-6 - (-8)$
- 14
 - 2
 - 2
 - 14

Add or subtract. Write in simplest form.

(Note: this worksheet will not automatically grade answers in Short Answer mode. Answers will only be graded in Multiple Choice mode.)

- ___ 47. $\frac{7}{15} - \frac{1}{5}$
- $\frac{2}{3}$
 - $\frac{4}{15}$
 - $\frac{7}{75}$
 - $\frac{3}{5}$

- ___ 48. $\frac{7}{8} - \frac{1}{6}$
- $\frac{17}{24}$
 - $\frac{4}{7}$
 - 3
 - $1\frac{1}{24}$

- ___ 49. $\frac{2}{3} + \frac{4}{15} + \frac{1}{5}$
- $\frac{14}{15}$
 - $1\frac{2}{15}$
 - $\frac{7}{23}$
 - $\frac{11}{15}$

- ___ 50. **COMPUTER** Lionel is buying a computer that normally sells for \$890. The state sales tax rate is 6%. What is the total cost of the computer including sales tax?
- \$53.40
 - \$943.40
 - \$1,424.00
 - \$836.60

Estimate using fractions.

- ___ 51. 39% of 80
- 32
 - 40
 - 31.2
 - 48

- ___ 52. 87% of 19
- 16.53
 - 15.2
 - 18
 - 19

- ___ 53. **RADIO** A radio is on sale for \$50. If this price represents a 10% discount from the original price, what is the original price to the nearest nickel?
- \$55.55
 - \$45.00
 - \$5.55
 - \$5.00

Add.

- ___ 54. $9 + (-32)$
- 41
 - 21
 - 23
 - 23

- ___ 55. $-22 + (-10) + 15$
- 3
 - 17
 - 27
 - 47

List each set of numbers in order from least to greatest.

- ___ 56. **BASEBALL** The pitchers for the home team had 12 strikeouts for 32 batters, while the pitchers for the visiting team had 15 strikeouts for 35 batters. Which of the following statements is true?
- The home team pitchers had a greater fraction of strikeouts.
 - The home team pitchers and the visiting team pitchers had the same fraction of strikeouts.
 - None of these statements are true.
 - The visiting team pitchers had a greater fraction of strikeouts.

- ___ 57. **ANIMALS** The table shows how fast the world's fastest fish, a sailfish, swims at a rate of 69 miles per hour. Is the distance a sailfish swims proportional to the number of hours it swims? Explain.

Time (h)	1	2	3	4
Distance (mi)	69	138	207	276

- No; The distance to time ratios not equal.
- Yes; The distance to time ratios are all equal to 70 miles per hour.
- Yes; The distance to time ratios are all equal to 69 miles per hour.
- Yes; The distance to time ratios are all equal to 68 miles per hour.

Assume all situations are proportional.

- ___ 58. **CLASSES** For every girl taking classes at the martial arts school, there are 3 boys who are taking classes at the school. If there are 236 students taking classes, write and solve a proportion to predict the number of boys taking classes at the school.
- a. $\frac{3}{4} = \frac{x}{236}$; 180 boys
 - b. $\frac{3}{4} = \frac{x}{236}$; 177 boys
 - c. $\frac{4}{3} = \frac{x}{236}$; 315 boys
 - d. $\frac{3}{4} = \frac{x}{236}$; 177 girls

ANALYZE TABLES Use the table that shows the percents of blood types of 145 donors during a recent blood drive.

Blood Type	Percent
O	45
A	40
B	11
AB	4

- ___ 59. Which blood type had less than 10 donors?
- a. Type B
 - b. Type AB
 - c. Type O
 - d. Type A
- ___ 60. **WEIGHT** An actor gains 20 pounds for a part and then loses 15 pounds during the filming of the movie to go along with the story. How many pounds is the actor above or below his original weight?
- a. 35 pounds above
 - b. 35 pounds below
 - c. 5 pounds below
 - d. 5 pounds above

Answer Key

- | | |
|-------|-------|
| 1. b | 27. c |
| 2. a | 28. c |
| 3. a | 29. a |
| 4. a | 30. b |
| 5. b | 31. d |
| 6. b | 32. c |
| 7. c | 33. c |
| 8. d | 34. a |
| 9. c | 35. c |
| 10. b | 36. c |
| 11. c | 37. c |
| 12. d | 38. d |
| 13. b | 39. d |
| 14. c | 40. b |
| 15. a | 41. b |
| 16. d | 42. d |
| 17. d | 43. b |
| 18. a | 44. d |
| 19. a | 45. c |
| 20. d | 46. b |
| 21. d | 47. b |
| 22. a | 48. a |
| 23. a | 49. b |
| 24. d | 50. b |
| 25. d | 51. a |
| 26. c | 52. c |
| | 53. a |
| | 54. d |

55. b

56. d

57. c

58. b

59. b

60. d

Scramble Map

Question #	Original Question #
1	59
2	60
3	8
4	9
5	48
6	49
7	2
8	1
9	10
10	42
11	43
12	12
13	33
14	34
15	22
16	5
17	3
18	4
19	27
20	26
21	45
22	46
23	44
24	40
25	41
26	7
27	13
28	55
29	56
30	51
31	50
32	14
33	15
34	19
35	20
36	21
37	32
38	31
39	24
40	25
41	23
42	29
43	57
44	58
45	39
46	38
47	52
48	53
49	54

50	28
51	17
52	18
53	30
54	35
55	36
56	47
57	6
58	11
59	16
60	37