

**Penny Sikes 5th & 6th Grade Mathematics Tournament
Sponsored by Farmers and Merchants Bank**

2019 6th Grade Individual Test

**DO NOT OPEN THIS TEST BOOKLET UNTIL
INSTRUCTED TO DO SO BY THE TEST MONITOR.**

- 1) Make sure your name, grade and school is correct on your answer sheet.
- 2) NO CALCULATORS!
- 3) If you must leave to go to the restroom raise your hand, and a monitor will escort you to the nearest restroom. Remember you have a time limit.
- 4) Read each problem carefully and mark each answer on your answer sheet.
- 5) Be sure to completely fill in the bubble for your answer. If you need to change your answer, make sure to completely erase previous answer.
- 6) Each correct answer on the test will be counted as one point on your individual score.
- 7) You will be given one hour to complete the test. You will be notified when the following times are remaining: 30 min, 15 min, 5 min
- 8) If individuals have the same written score, ties will be broken by determining which student gave correct answers to the most difficult item(s) on the test.
- 9) When the individual testing is over, please make sure you take your test and scratch work with you.
- 10) Pencils will be taken up and more will be provided at each ciphering table.

GOOD LUCK!

1. The average of the first ten odd whole numbers is:

- A) 8
- B) 9
- C) 10
- D) 11

2. Which has the greatest area?

- A) A rectangle 1 yd x 3 ft
- B) A rectangle 2 ft x 4 ft
- C) A rectangle 12 in x 3 in
- D) A rectangle 3 ft x 4 in

3. I have \$5. If I spend 20% at the grocery store, then I spend 50% of the remaining money at the arcade, how much will I have left?

- A) \$1.50
- B) \$2.00
- C) \$3.00
- D) \$3.50

4. The twelfth smallest positive prime number is:

- A) 37
- B) 31
- C) 29
- D) 23

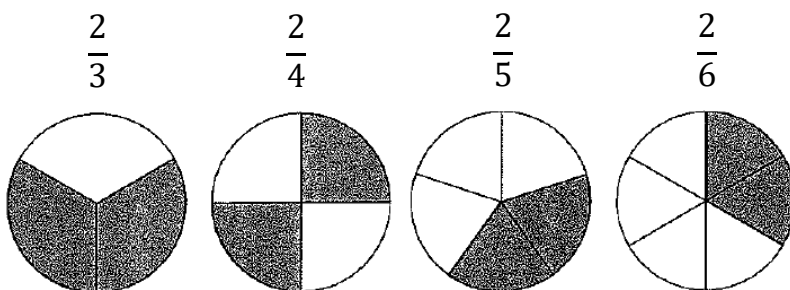
5. If $8 @ 3 @ 4 = 96$, which operation is @?

- A) +
- B) -
- C) ÷
- D) ×

6. If I divide my house number by 2 and then add 6, I get 24. What is my house number?

- A) 9
- B) 15
- C) 36
- D) 54

7. Shari studies these pictures of fractions.



What pattern might she correctly notice in the fractions?

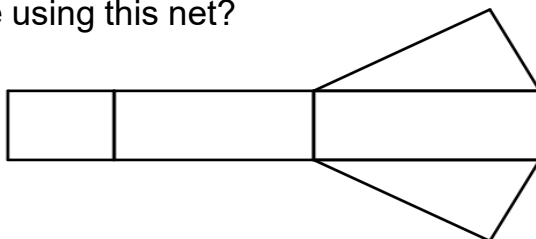
- A) Increasing the denominator increases the value of the fraction.
- B) If the denominator stays the same and the numerator increases, the value of the fraction is a smaller amount.
- C) Increasing the denominator by 2 cuts the size of the fraction in half.
- D) If the numerator stays the same and the denominator increases, the value of the fraction is a smaller amount.

8. There are 36 fifth graders in art class. The art teacher wants to arrange their pictures on the wall so that one is in the first row, two are in the second row, three are in the third row, etc. How many rows of pictures will there be?

- A) 8 rows
- B) 9 rows
- C) 10 rows
- D) 11 rows

9. What three dimensional shape can be made using this net?

- A) Triangular Pyramid
- B) Square Pyramid
- C) Triangular Prism
- D) Square Prism



10. A rectangular prism is 18 millimeters wide and 6 millimeters high. Its volume is 1,512 cubic millimeters. What is the length of the rectangular prism?

- A) 14 millimeters
- B) 1488 millimeters
- C) 504 millimeters
- D) 50.4 millimeters

11. If $\frac{24}{g} = 3$, then what is the value of $18(6 - g)$?

- A) -1188
- B) -378
- C) -270
- D) -36

12. Last year, Vince picked $\frac{9}{10}$ of the strawberries in his garden. Jonah picked 65 out of 72 strawberries in his garden. Which comparison is true for Vince and Jonah?

- A) $\frac{9}{10} > 65$ out of 72
- B) $\frac{9}{10} < 65$ out of 72
- C) $\frac{9}{10} = 65$ out of 72
- D) There is no way to compare Vince and Jonah.

13. Which fraction is not equivalent to $\frac{5}{8}$?

- A) $\frac{30}{48}$
- B) $\frac{20}{32}$
- C) $\frac{50}{56}$
- D) $\frac{40}{64}$

14. How many degrees Celsius ($^{\circ}\text{C}$) is 176°F ?

Use the following formula:

$$C = \frac{5}{9} \times (F - 32)$$

- A) 349°C
- B) 116°C
- C) 285°C
- D) 80°C

15. A rectangular piece of paper is folded in half. It is folded in half again. If the paper is folded in half three more times, how many sections will there be when the paper is completely unfolded.

- A) 8
- B) 16
- C) 32
- D) 64

16. There are 10 men and 8 women running a race. What is the ratio of the number of female runners to the total number of runners?

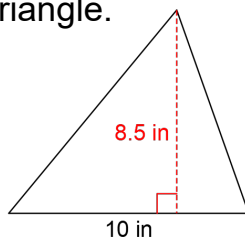
- A) 9:5
- B) 4:9
- C) 9:10
- D) 5:23

17. Simplify: $5(4v + 2) + 7(v + 8)$

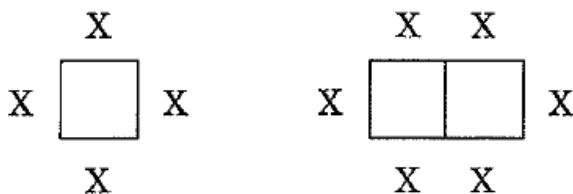
- A) $93v$
- B) $37v$
- C) $27v + 10$
- D) $27v + 66$

18. Find the area of the triangle.

- A) 85 in^2
- B) 42.5 in^2
- C) 85 in^3
- D) 42.5 in^3



19. The librarian is setting up tables in the media center. He can place 4 chairs around one table. If he pushes 2 tables together, he can place six chairs around the table.



If 22 people need to sit around the table, how many tables should the librarian push together?

- A) 8
- B) 9
- C) 10
- D) 11

20. Marci bought 2 gallons of milk. She dropped one of them and spilled 2 quarts of milk. How many pints of milk does Marci have left?

- A) 4 pints
- B) 6 pints
- C) 8 pints
- D) 12 pints

21. There are three times as many cars in the parking lot as there are tractor-trailers. If there are 180 total vehicles in the parking lot, how many tractor-trailers are there?

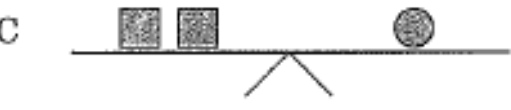
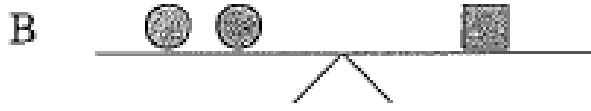
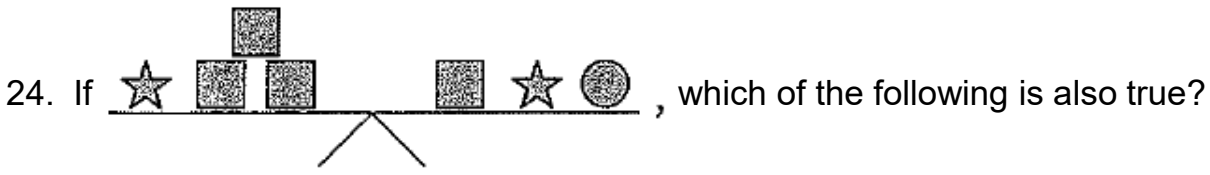
- A) 45
- B) 135
- C) 60
- D) 140

22. Simplify: $|-4| - \frac{9}{-3^2+6}$

- A) -7
- B) 1
- C) 7
- D) -1

23. Solve for x: $5.8 - 4.5x = -8.6$

- A) 6.7
- B) -4.3
- C) -4.5
- D) 3.2



25. Simplify: $(6 \times -\frac{1}{2} + \frac{3}{4}) \times 1\frac{1}{3}$

- A) $-6\frac{1}{5}$
- B) $-1\frac{2}{5}$
- C) $-6\frac{5}{6}$
- D) -3

26. Bailey wrote two numbers, as shown below.

1. 3 586,927
2. 3,859,672

- A) The value of the digit 6 in the first number is $\frac{1}{10}$ the value of the digit 6 in the second number.
- B) The value of the digit 7 in the first number is 10 times the value of the digit 7 in the second number.
- C) The value of the digit 8 in the first number is $\frac{1}{10}$ the value of the digit 8 in the second number.
- D) The value of the digit 9 in the first number is 10 times the value of the digit 9 in the second number.

27. Brandon, Joshua, and Waylon each earn a salary at their jobs. Brandon makes \$48,978. Joshua makes \$52,657. Waylon makes \$74,149. Since they all live in the same apartment, they want to split their salaries equally. How much would each roommate get?

- A) \$56,479.23
- B) \$58,594.67
- C) \$60,679.67
- D) \$62,494.23

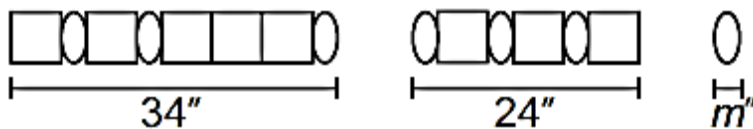
28. A city planner needs to provide dimensions on blueprints in both standard and metric measurement units. The chart below shows some equivalent measures.

Length	Equal Length
1 foot	30.48 centimeters
1 yard	1.09 meters

Using the information in the chart, choose the equation that represents correct equivalent measurements the city planner may have made.

- A) $10 \text{ yd} = 109 \text{ m}$
- B) $10^4 \text{ ft} = 30,480 \text{ cm}$
- C) $10^3 \text{ ft} = 304.8 \text{ cm}$
- D) $10^2 \text{ ft} = 3,048 \text{ cm}$

29. Brooks has two types of beads (oval-shaped and square-shaped). The lengths of two different strings of the beads are shown here. The width of each oval-shaped bead is m inches. What is the value of m ?



- A) 3
- B) 5
- C) 9
- D) 10

30. Simplify: $2 \cdot 2^3 \cdot 2^4$

- A) 8^7
- B) 8^8
- C) 2^7
- D) 2^8

31. Laura can paint plywood at a rate of 3.2 square feet per minute. How many minutes does it take her to paint both sides of a 4 foot by 8 foot piece of plywood?

- A) 10
- B) 12
- C) 15
- D) 20

32. Sarah is simplifying the expression below. What will she simplify on her fourth step?

$$5.5 + 3.1 \times 1.9 - (4.9 - 2.4)^2$$

- A) $5.5 + 5.89$
- B) $4.9 - 2.4$
- C) 8.6×1.9
- D) 2.5^2

33. Tom fed his chickens with grains on Sunday. The chickens ate a quarter of what was given to them that day. On Monday, the chickens ate a quarter of what was left on Sunday night. What fraction of the original food was left on Monday night after the chickens went to bed?

- A) $\frac{1}{16}$
- B) $\frac{1}{2}$
- C) $\frac{3}{16}$
- D) $\frac{9}{16}$

34. Determine the distance between the points $(-40, 22)$ and $(19, 22)$?

- A) 0
- B) 21
- C) 44
- D) 59

35. If the mean of this data set is 37, which number could “a” be?

37 40 39 a 38 35 35

- A) 34
- B) 35
- C) 36
- D) 37

36. Tracy spent \$80 purchasing food for her company picnic. There will be 20 people eating at the picnic. She will purchase hotdogs for half of the people and hamburgers for the other half. Everyone will get a bag of chips. If each bag of chips is \$1.00 and hamburgers cost \$3.50 each, how much is each hot dog?

- A) \$1.50
- B) \$2.50
- C) \$3.00
- D) \$3.50

37. The Blackwelder family consists of 2 parents, 2 girls, 3 dogs, and 2 birds. The family bought tickets to the local festival. The tickets are priced on how many legs are walking into the festival.

Festival Tickets	
Species	Price (per leg)
Human	\$2.35
Animal	\$1.85

How much did the Blackwelder family have to pay to enter the festival?

- A) \$44.40
- B) \$56.40
- C) \$48.40
- D) \$49.40

38. The ten-thousands' digit of $654,321$ + the tens' digit of $654,321$ =

- A) 8
- B) 7
- C) 6
- D) 5

39. Identify f : $(-6) + 6 \div 3 = (-8) \div (3 - f)$

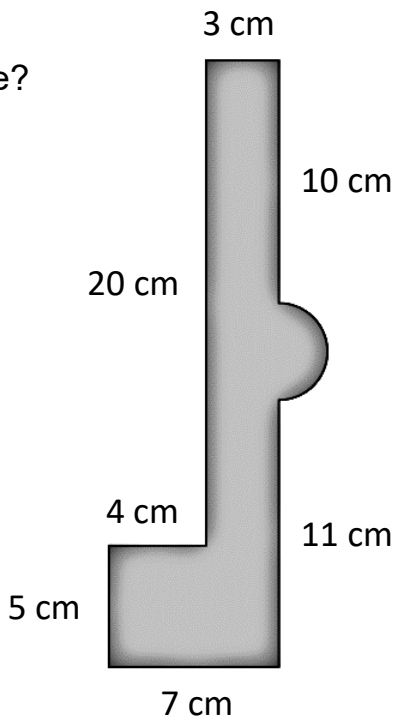
- A) 2
- B) 1
- C) 3
- D) -1

40. What is the product of the quotient and the remainder when 1111 is divided by 22?

- A) 25
- B) 250
- C) 550
- D) 1100

41. What is the area of this figure?

$$\pi = 3.14$$



- A) 101.28 cm^2
- B) 107.56 cm^2
- C) 120.12 cm^2
- D) 127.14 cm^2

42. Ms. Smith wants to put a fence around a rectangular field. She makes a scale drawing on a coordinate grid. Two of the opposite corners are at $(15, 45)$ and $(27, 35)$. The scale is $1 \text{ unit} = 30 \text{ feet}$. How many feet of fence does Ms. Smith need to completely enclose the field?

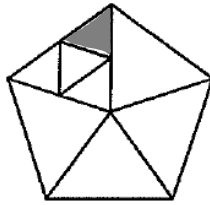
- A) 44 feet
- B) 660 feet
- C) 1,320 feet
- D) 3,600 feet

43. Janelle is sending a package to her friend. She needs to calculate how much the contents of the package weigh. Janelle uses the table below to find the total weight of the contents of the package.

Contents of Janelle's Package	
Object	Weight
Pad of paper and a pencil	8 oz.
Coloring book	5 oz.
Dictionary	2 lb.
Toy	11 oz

- A) 3 lb. 8 oz.
- B) 5 lb. 6 oz.
- C) 26 oz.
- D) 56 lb.

44. Soki used the model below to represent a situation.



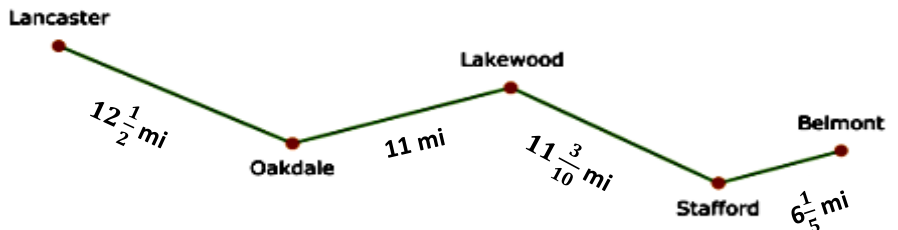
Which situation could Soki's model represent?

- A) Soki has \$5 in quarters. There are 4 quarters in one dollar. How many quarters does Soki have in all?
- B) Soki has a rope that is 5 yards long. She cuts the rope into 4 equal length pieces. Soki uses all of the rope. How long, in yards, is each piece of rope?
- C) Of Soki's friends, 5 of them each have $\frac{1}{4}$ of a pound of gummy bears. The 5 friends combine the gummy bears. How many pounds of gummy bears do Soki's 5 friends have in total?
- D) Soki has $\frac{1}{5}$ of a gallon of paint remaining. She puts all of the remaining paint into 4 jars. Each contains the same amount of paint. If Soki uses only one jar, how much will he use?

45. Jim, Jill and Jack had a race at school. Jim did not finish first, Jill did not finish second and Jack did not finish last. Jack finished before Jill. In what order did they finish?

- A) Jack, Jill, Jim
- B) Jill, Jim, Jack
- C) Jim, Jack, Jill
- D) Jack, Jim, Jill

46. Using the paths shown, how far is it from Lancaster to Belmont and back to Lancaster?

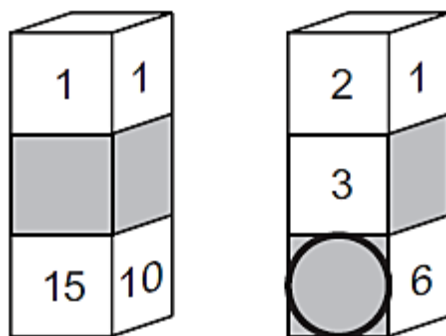


- A) 80 miles
- B) 141.4 miles
- C) 82 miles
- D) 41 miles

47. It takes 5 minutes for 4 hens to eat 60 bugs. How long does it take 2 hens to eat 40 bugs? Assume all hens eat bugs at the same speed.

- A) 3.3 minutes
- B) 6.7 minutes
- C) 13.3 minutes
- D) 60 minutes

48. A stack of cubes is shown here from two different views. The product of the three numbers down the side of the stack is the same for each of the four sides of the stack. For each side of the stack, the numbers increase in value from the top to the bottom of the stack. The shaded squares have numbers that are hidden. What number must be in the shaded square that also has a circle in it?



- A) 1
- B) 4
- C) 5
- D) 10

49. Rachael, Elaine, and Connie have a total of 58 beads. Rachael and Elaine have a total of 34 beads. Elaine and Connie have a total of 42 beads. How many beads does Elaine have?

- A) 8
- B) 14
- C) 18
- D) 22

50. Two pie pans of the same size remain on the counter. One pan has $\frac{1}{2}$ of a pie left in it, and the other has $\frac{3}{4}$ of a pie left in it. Mom wishes to divide all the pies into pieces that are each $\frac{1}{8}$ of a whole pie. How many pieces of pie will she have when she is finished?

- A) 10
- B) 12
- C) 14
- D) 16

2019 6th Grade Individual Test

ANSWER KEY

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