Mission Math Utah

Spring Competition

Elementary Division: Multiple Choice

March 17, 2018

Name: _____

School: _____

Grade: _____

General Information

- Do not open your test until you are instructed to do so by the proctor.

- This section contains **30 multiple choice problems**. You will have exactly **40 minutes** to work on them.

- Electronic devices, including calculators, must be turned off.

Grading

- Each correct answer will be worth 1 points.

- Each incorrect answer will be worth 0 points.

- Each blank answer will be worth 0 points.
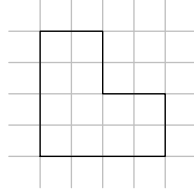
- Partial credit will not be awarded.

Answer Forms

- Answers must be marked clearly on the answer form. There will be 5 answer choices for each question. **Circle only one answer.**

- Correctly fill out the information above in a legible manner.

These problems are meant to be challenging. Don't worry if you are unable to solve a problem. Try to focus on the ones you think you may be able to solve. You are not penalized for guessing, so take an educated guess on any ones you are not able to solve. Check your work once you are done. You may only turn your test in after 30 minutes have passed.

1. What is $15 \div 5$?

   (A) 1   **(B)** 2   **(C)** 3   **(D)** 4   **(E)** 5

2. Each small square has area 1. What is the area of the figure?

   (A) 12   **(B)** 14   **(C)** 16   **(D)** 18   **(E)** 20

3. What is $(3 + 2) \times 5$?

   (A) 8   **(B)** 15   **(C)** 25   **(D)** 30   **(E)** 40
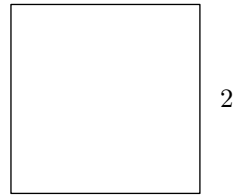
4. George's car is 10 feet long, and his bus is twice as long. How many feet long is George's bus?

   (A) 5   **(B)** 10   **(C)** 15   **(D)** 20   **(E)** 25

5. What is $1 + 3 + 5 + 7 + 9$?

   (A) 21   **(B)** 22   **(C)** 23   **(D)** 24   **(E)** 25

6. What is the area of a square with side length 2?

2

(A) 2   (B) 4   (C) 6   (D) 8   (E) 10

7. Alex planted 8 strawberry plants. How many more plants does Alex need in order to fill a row of 13 plants?

(A) 5   (B) 6   (C) 7   (D) 8   (E) 9

8. Blaine has 10 books which are either orange, green, or purple. If 5 books are orange and 2 books are green, how many books are purple?

(A) 2   (B) 3   (C) 4   (D) 5   (E) 6

9. Cesar has 20 oranges. If he arranges them into a 1×1 square, there are 19 oranges left over. If he arranges them into a 2×2 square, there are 16 oranges left over. How many oranges are left over if he arranges them into a 3×3 square?

(A) 7   (B) 9   (C) 11   (D) 13   (E) 15

10. Which of the following fractions is the largest?

(A) $\frac{1}{2}$ (B) $\frac{2}{3}$ (C) $\frac{3}{4}$ (D) $\frac{4}{5}$ (E) $\frac{5}{6}$

11. Which of the following numbers is different from all the others?

(A) 0.25 (B) $\left(\frac{1}{2}\right)^2$ (C) 25% (D) $\frac{3}{4} \times \frac{2}{3}$ (E) $\frac{1}{12} + \frac{1}{6}$

12. Derek is making a pan of cupcakes. There are 6 rows in the pan, and each row holds 5 cupcakes. If each cupcake needs 1/2 cup of sugar, how many cups of sugar does Derek need for the whole pan?

    (A) 15   (B) 20   (C) 25   (D) 30   (E) 60

13. Aunt Anna is 42 years old. Caitlin is 5 years older than Brianna, and Brianna is half as old as Aunt Anna. How old is Caitlin?

    (A) 16   (B) 21   (C) 26   (D) 79   (E) 89

14. St. Olaf and St. Patrick are thinking of numbers. St. Olaf adds their numbers together and notices that the result is the same as his original number. What was St. Patrick's number?

    (A) -20 (B) -10 (C) -5 (D) 0   (E) 10

15. James has twice as many marbles as Jacob. Jacob has one third as many marbles as Max. Max has 36 marbles. How many marbles does James have?

    (A) 12   (B) 24   (C) 48   (D) 54   (E) 60

16. Given that $x + y = 16$ and $x - y = 2$, what is x?

    (A) 9   (B) 11   (C) 13   (D) 14   (E) 18

17. If 5 keks equals 1 goof, and 2 goofs equals 3 gags, how many gags are equal to 100 keks?

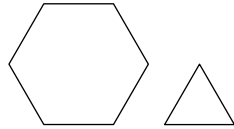   (A) 20   (B) 30   (C) 150   (D) 300   (E) 750

18. Josephine and her friends are playing darts. She throws 8 darts. Her friend Josh throws 9 more darts than she does. Her friend Milly throws 3 fewer darts than Josh. How many total darts do the three of them throw all together?

    (A) 29   **(B)** 30   **(C)** 31   **(D)** 39   **(E)** 41

19. What is 55% of 60?

    (A) 16   **(B)** 30   **(C)** 33   **(D)** 35   **(E)** 55

20. A regular hexagon and an equilateral triangle have the same side length. The area of the hexagon is how many times greater than the area of the triangle?
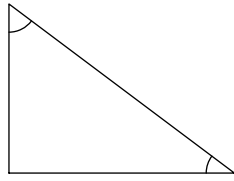
    (A) 2   **(B)** 4   **(C)** 6   **(D)** 8   **(E)** 12

21. Bilbo has to travel 100 miles to his home. If he travels at a rate of 5 miles an hour, how many hours will it take Bilbo to reach his home?

    (A) 18   **(B)** 20   **(C)** 25   **(D)** 95   **(E)** 105

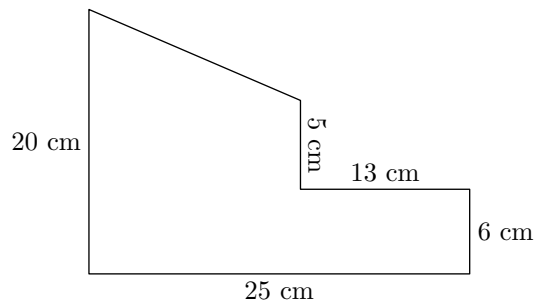22. If the smallest angle in this right triangle is 30° , what is the second largest angle in the triangle?

(A) 30°   (B) 60°   (C) 90°   (D) 120°   (E) 150°

23. In Mrs. Mathy's 3rd grade class, there are 30 students. Every student owns either a cat or a dog, and some students own both a cat and a dog. If 20 students own a cat and 20 students own a dog, how many students own both a cat and a dog?

(A) 3   (B) 5   (C) 8   (D) 10   (E) 15

24. Farmer Milo brings his three largest pigs to the annual pig contest at his local fair. His pigs names are Queenie, BoBo, and Patricia. Queenie and BoBo together weigh 10 pounds. BoBo and Patricia together weigh 11 pounds. Patricia and Queenie together weigh 9 pounds. How many pounds do all three pigs weigh together?
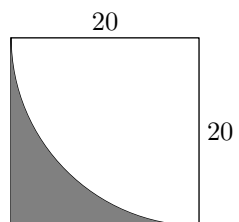
(A) 10   (B) 15   (C) 20   (D) 25   (E) 30

25. Find the perimeter of the following shape:

20 cm

5 cm

13 cm

6 cm

25 cm

(A) 72 cm   (B) 75 cm   (C) 78 cm   (D) 81 cm   (E) 84 cm

26. Annie, Barton, Clive, Dan, and Elijah are sitting together on a row of 5 seats. Dan is not sitting next to Elijah, but is sitting next to Barton. Annie is next to Clive and Barton, and Elijah has an edge seat. Who is sitting in the middle?

(A) Annie   (B) Barton   (C) Clive   (D) Dan   (E) Elijah

27. In centimeters, what is the positive difference between the circumference and the area of a circle with a radius of 5 cm?

(A) 0   (B) 25   (C) 10π (D) 15π (E) 35π

28. The product of two whole numbers is 1000. If neither is a multiple of 10, what is their sum?

(A) 133   (B) 135   (C) 203   (D) 205   (E) 254

29. Alasdair has 10 cards numbered 1 through 10. He pulls out two cards at random without putting them back. What is the probability that he first pulls out an even number, and then a prime number?

(A) $\frac{8}{45}$ (B) $\frac{17}{90}$ (C) $\frac{1}{5}$ (D) $\frac{19}{90}$ (E) $\frac{2}{9}$

30. What the area of the shaded region?

(A) 400 (B) $400 - 100\pi$ (C) $400 - 40\pi$ (D) 100π (E) 100