

Math Skills

(Grade 7-12)

The directions for the Math Skills section begin on the next page.



DO NOT TURN THE PAGE UNTIL YOU ARE TOLD TO DO SO.

Math Skills

DIRECTIONS:

This is a test of basic math skills. It shows how well you can solve everyday problems using your math skills. Read each question carefully and then mark your answer on the Math Skills section of the answer sheet.

Some sample questions are shown below.

Math Skills Sample Item 1

$$\begin{array}{r} 1. \ 12 \\ + 6 \\ \hline \end{array}$$

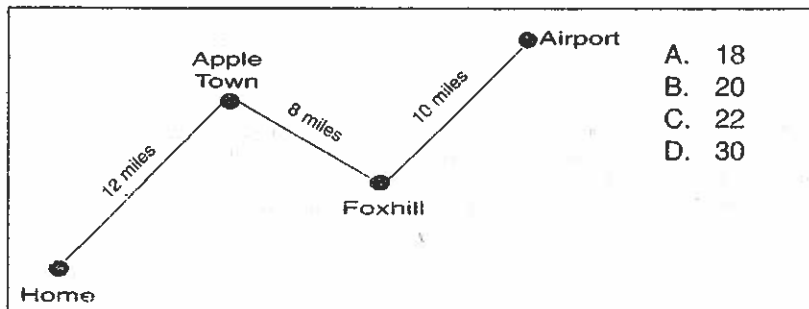
- A. 6
- B. 15
- C. 18
- D. 20

The correct answer is C. Find Math Skills Sample 1 on your answer sheet. Fill in the circle with the letter C as shown below.

1. (A) (B) (C) (D)

Math Skills Sample Item 2

2. Tony needs to go from his house to the airport. How many miles does he need to drive?



The correct answer is D. Find Math Skills Sample 2 on your answer sheet. Fill in the circle with the letter D as shown below.

2. (A) (B) (C) (D)

Math Skills

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- You will have ⁴⁰~~25~~ **MINUTES** to complete the problems in this section.
- You may write ~~in the booklet~~ or on scratch paper, but you must mark your answers on the answer sheet.
- There is only one correct answer for each problem.
- If you change your mind about an answer, erase it and fill in the new one.
- Do not spend too much time on any one problem. Work on as many problems as you can.
- You may **not** use a calculator to solve the problems.
- Mark your answers on the section of the answer sheet that says **MATH SKILLS**.

Do you have any questions?



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1.
$$\begin{array}{r} 478 \\ +152 \\ \hline \end{array}$$

A. 326
B. 530
C. 620
D. 630

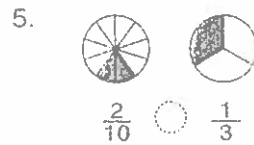
2.
$$\begin{array}{r} 430 \\ -118 \\ \hline \end{array}$$

A. 212
B. 312
C. 322
D. 328

3.
$$\begin{array}{r} 213 \\ \times 5 \\ \hline \end{array}$$

A. 765
B. 1,055
C. 1,065
D. 1,075

4. $8 \overline{)64} =$
A. 6
B. 7
C. 8
D. 9



- A. $\frac{2}{10} > \frac{1}{3}$
B. $\frac{2}{10} < \frac{1}{3}$
C. $\frac{2}{10} = \frac{1}{3}$
D. None of the above

6. $\frac{11}{12} - \frac{6}{12} =$
A. $\frac{5}{24}$
B. $\frac{5}{12}$
C. $\frac{17}{24}$
D. $\frac{17}{12}$

7.
$$\begin{array}{r} 1.7 \\ 2.6 \\ +4.9 \\ \hline \end{array}$$

A. 0.92
B. 7.22
C. 9.2
D. 10.2

8.
$$\begin{array}{r} 2.83 \\ -1.47 \\ \hline \end{array}$$

A. 1.36
B. 1.44
C. 13.6
D. 14.4

Go on to the next page.

9. Hector keeps 90 small marbles in one bag and 10 large marbles in another. How many marbles does he have? How can this problem be solved?

- A. $90 + 10$
- B. $90 - 10$
- C. 90×10
- D. $90 \div 10$

10. Ryan's birthday cake was cut into 16 equal slices. If Ryan and his friends ate $\frac{1}{4}$ of the cake, how many slices did they eat?

- A. 4
- B. 8
- C. 16
- D. 20

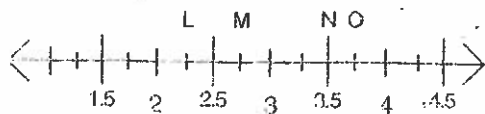
11. Grace mailed 2 packages that weighed 8.47 pounds together. One of the packages weighed 2.89 pounds. What was the weight of the other package?

- A. 5.58 pounds
- B. 6.58 pounds
- C. 11.36 pounds
- D. 55.8 pounds

12. Rachel needs 2 feet 5 inches of yarn to complete her project. How many inches of yarn does she need in all?

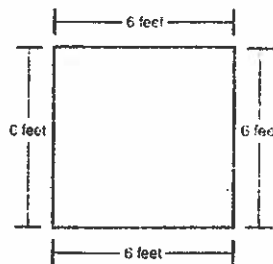
- A. 5
- B. 7
- C. 24
- D. 29

13. Which point is at 2.75 on the number line?



- A. Point L
- B. Point M
- C. Point N
- D. Point O

14. Mr. Harper built a square sandbox for his son. Each side of the sandbox is 6 feet.



What is the perimeter of the sandbox?

- A. 6 feet
- B. 12 feet
- C. 18 feet
- D. 24 feet



A pencil weighs about 5 _____.

- A. liters
- B. grams
- C. kilograms
- D. milliliters

16. **Markets**

Fruit	6th Street Market	Western Market	Total Boxes
Apples	78	79	157
Pears	50	35	85
Total Boxes	128	144	272

Based on the chart above, which of the following statements is true?

- A. Western Market has fewer apples and pears than 6th Street Market.
- B. Western Market has more apples than 6th Street Market.
- C. 6th Street Market has more apples than Western Market.
- D. 6th Street Market has more pears than Western Market.

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17. $272 \div 36 =$

- A. 7
- B. 7 R2
- C. 7 R20
- D. 7 R200

18. $45,555 + 4,444 + 322 =$

- A. 49,211
- B. 49,321
- C. 50,321
- D. 122,195

19. $0.578 + 0.3031 =$

- A. 0.2751
- B. 0.8711
- C. 0.8811
- D. 8811

20. $0.9375 \div 2.5 =$

- A. 0.0375
- B. 0.375
- C. 3.75
- D. 375

21. $5 \times \frac{1}{8} =$

- A. $\frac{1}{40}$
- B. $\frac{5}{40}$
- C. $\frac{5}{8}$
- D. 40

22. $9\frac{5}{6} - 4\frac{7}{9} =$

- A. $\frac{1}{18}$
- B. $4\frac{1}{18}$
- C. $5\frac{1}{18}$
- D. $14\frac{11}{18}$

23. 8 is a square root of which number?

- A. 2
- B. 16
- C. 18
- D. 64

24. $5^3 =$

- A. 8
- B. 15
- C. 125
- D. 135

25. Simplify.

$5 + 8 \times 2 - 7$

- A. -65
- B. 14
- C. 19
- D. 35

26. Simplify.

$2(3) + 4 \div 2$

- A. 7
- B. 8
- C. 9
- D. 10

Go on to the next page.



27. If $8t = 32$, then $t =$

- A. 4
- B. 8
- C. 16
- D. 32

28. If $2(x + 4) = 14$, then $x =$

- A. 3
- B. 5
- C. 10
- D. 11

29. Simplify.

$$(34d + 10 - 15d) - (9d - 9 + 4)$$

- A. $15d$
- B. $10d + 5$
- C. $10d + 15$
- D. $28d + 5$

30. Salvador jogs for 15 minutes and burns 120 calories. At this rate, how many calories will he burn if he jogs for an hour and a half?

- A. 135
- B. 480
- C. 720
- D. 1,800

31. Some eighth graders held a car wash to raise money. They washed 77 cars and charged \$5 each. Their expenses were \$37. How much money did they earn?

- A. \$185
- B. \$348
- C. \$385
- D. \$422

32. Rice is sold in 80-ounce bags. For $\frac{1}{2}$ serving, 4 ounces of rice is used. How many servings of rice are in a bag?

- A. 10
- B. 20
- C. 40
- D. 160

33. On a particular blueprint, 2.2 inches represents 3 feet. If a building is 450 feet long, how many inches long is it on the blueprint?

- A. 150
- B. 204
- C. 330
- D. 900

34. Julie gets a 15% commission on all her sales at a furniture store. If Julie's sales were \$329 last week and \$550 this week, what was her total commission?

- A. \$49.35
- B. \$82.50
- C. \$131.85
- D. \$1,010.85

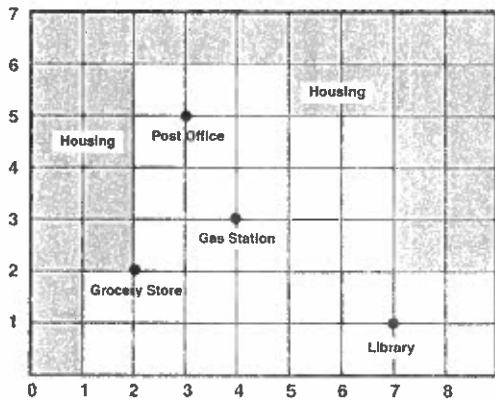
35. Twenty-five percent of the 29,436 residents of Grandville attended the high school football game. There were 500 visitors who also attended to support the opposing team. How many people went to the game?

- A. 7,859
- B. 9,177
- C. 22,077
- D. 22,577

Go on to the next page.



36. The planning board of Valley City wants to build a school between the post office and the library.



Which coordinates show a possible location for the school?

- A. (3, 2)
 - B. (3, 5)
 - C. (5, 3)
 - D. (7, 1)
37. Leah had \$130 in her savings account when she started her new job. She decided to put \$85 into the account every month. Which equation would find n , the number of months it would take for Leah to increase her savings to \$600?

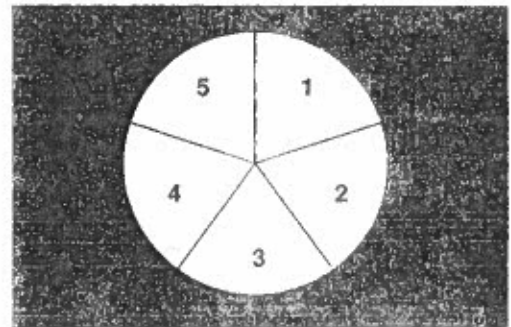
- A. $85n + 130 = 600$
- B. $85n - 130 = 600$
- C. $130n + 85 = 600$
- D. $85n = 600$

38. The chart below shows rainfall in Duran City over a period of four days.

Day	Rainfall in Duran (in inches)
1	0.25
2	1.10
3	0.39
4	1.26

What is the range of rainfall, in inches?

- A. 0.25
 - B. 0.75
 - C. 1.01
 - D. 3.00
39. Tracy and Donna are playing a board game. Tracy spins the spinner to determine how far to move her token.



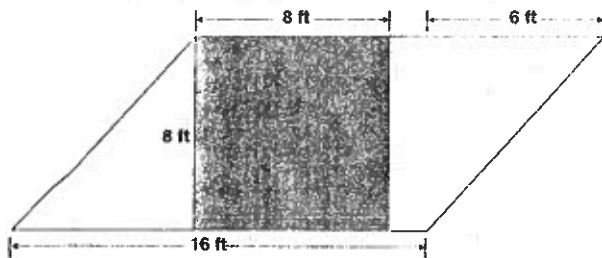
What is the probability that Tracy will move her token 4 spaces on the board?

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

40. Diane needs red and green ribbons to make a bow for a floral arrangement. She cuts 25% off a 36-inch piece of red ribbon. She then cuts 20% off a 90-inch piece of green ribbon. What is the total length of the pieces of ribbon she is using for the floral arrangement?

- A. 9 inches
- B. 18 inches
- C. 27 inches
- D. 99 inches

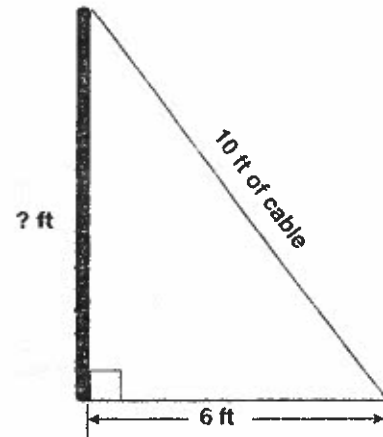
41. This is a drawing of Daryl's garden. The shaded area is for herbs. The unshaded areas are for daisies.



How many square feet are reserved for daisies?

- A. 24
- B. 48
- C. 64
- D. 128

42. The diagram shows a 10-foot wire cable attached to the top of a pole.



If the cable is attached to the ground 6 feet from the base of the pole, how high is the pole?

- A. 8 feet
- B. 12 feet
- C. 16 feet
- D. 64 feet

Go on to the next page.



43. $\frac{5}{12}$ of 39 =

- A. $3\frac{1}{4}$
- B. $8\frac{1}{4}$
- C. $16\frac{1}{4}$
- D. $21\frac{2}{3}$

44. What is 5.2 expressed as a percentage?

- A. 0.052%
- B. 0.52%
- C. 52%
- D. 520%

45. Simplify.

$$[(8 + 3)^2 - 5^2] \div 2(16 - 4)$$

- A. 3
- B. 4
- C. 72
- D. 576

46. What is 60% written as a fraction?

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

47. Simplify.

$$2(x^2 + 2x + 4) - (3x^2 - 6x + 5)$$

- A. $-x^2 - 4x - 1$
- B. $-x^2 + 10x + 3$
- C. $5x^2 + 8x - 1$
- D. $5x^2 + 10x + 3$

48. If $-\frac{2}{3}x = 8$, then $x =$

- A. $-\frac{16}{3}$
- B. $\frac{16}{3}$
- C. -12
- D. 12

49. Simplify.

$$3(n - 7) + 5(n + 8)$$

- A. $8n + 1$
- B. $8n + 19$
- C. $8n^2 + 16$
- D. $27n$

50. $9\frac{3}{15} - 3\frac{1}{6} =$

- A. $5\frac{5}{6}$
- B. $5\frac{29}{30}$
- C. $6\frac{1}{30}$
- D. $6\frac{2}{9}$

51. Simplify.

$$-2[4 + -8 - -3] =$$

- A. -11
- B. -2
- C. 2
- D. 5

52. Simplify.

$$\frac{5^2 + 5}{8 - 3 \times 2 + 1}$$

- A. $1\frac{4}{11}$
- B. $2\frac{8}{11}$
- C. 5
- D. 10

Go on to the next page.



53. Simplify.

$$| -1 - 2 | - | -2 + 4 | + | 5 - 8 | =$$

- A. -8
- B. -2
- C. 4
- D. 8

54. If $3x - 2(4x + 5) = x + 2$, then $x =$

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

55. Jeffrey is planning a breakfast for 8 people. He estimates that each person will drink $7\frac{1}{2}$ ounces of juice. How many 46-ounce bottles of juice should Jeffrey buy?

- A. 1
- B. 2
- C. 5
- D. 6

56. A technician charged \$35 for a service call and \$80 per hour for labor. If the total bill was \$395, how many hours did the technician work?

- A. 3.5
- B. 4.5
- C. 5.0
- D. 3.5

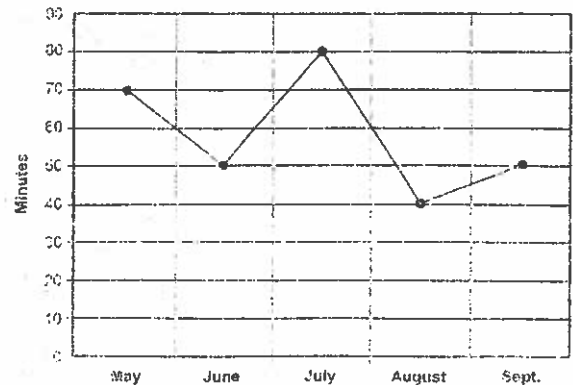
57. Three brothers took jobs delivering coupon booklets. Joe delivered 3 boxes of booklets. Mike delivered 2 boxes of booklets as well as 51 individual booklets. Peter delivered 4 boxes of booklets and 21 individual booklets. The brothers delivered a total of 747 booklets. How many booklets were in each box?

- A. 9
- B. 11
- C. 75
- D. 81

58. At 2:00 P.M., the temperature in Juan's backyard was 29.7°C . By 7:00 P.M., the temperature had fallen to 21.2°C . What was the average decrease in temperature each hour?

- A. 1.4°C
- B. 1.7°C
- C. 3.5°C
- D. 8.5°C

59. The graph below shows the average number of minutes per week that a group of people spent at a physical fitness center from May through September.



What is the range of this data?

- A. 20 minutes
- B. 40 minutes
- C. 60 minutes
- D. 90 minutes

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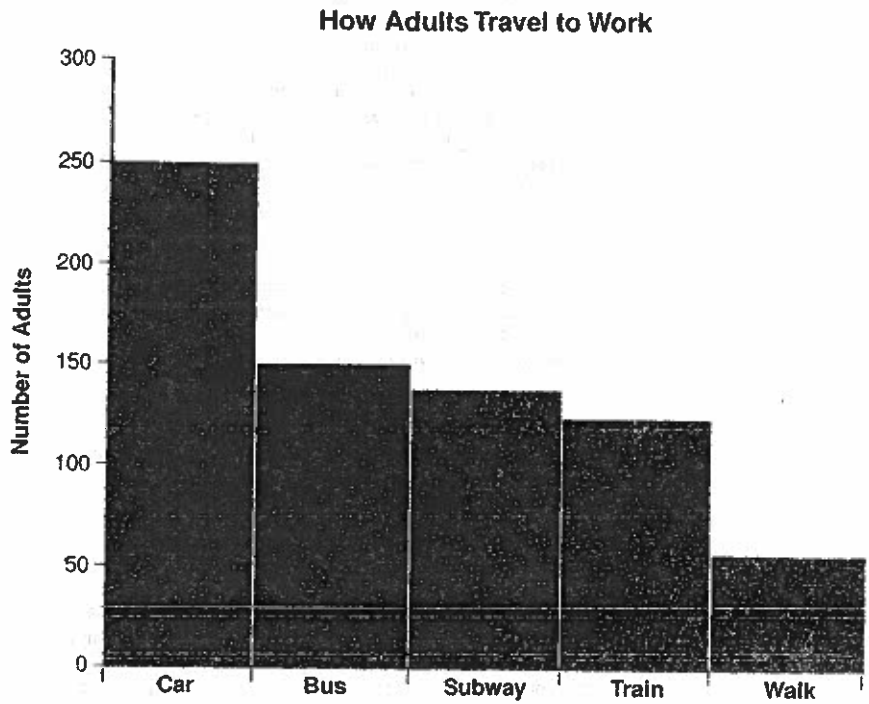
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60. One gallon of water equals 180 cubic inches and weighs 8 pounds. If the dimensions of an aquarium are 30 inches by 12 inches by 15 inches, and it weighs 10 pounds, how much will the aquarium weigh when it is filled with water?
- A. 30 pounds
 - B. 250 pounds
 - C. 685 pounds
 - D. 5,400 pounds
61. A hiking club has a 5-gallon water container. Hikers can draw water from it to fill their water bottles. A 1-gallon container holds 128 ounces. If a hiker's bottle holds 28 ounces, how many water bottles can be completely filled from the 5-gallon container?
- A. 4
 - B. 22
 - C. 23
 - D. 100
62. Before the construction of a bridge across a river, blocks of concrete had to be placed in the riverbed. Each block had the following dimensions: 6 yards x 6 yards x 6 yards, or 6^3 cubic yards. What is the volume in standard notation?
- A. 9 yds^3
 - B. 18 yds^3
 - C. 36 yds^3
 - D. 216 yds^3
63. Jose spent \$14.76 to buy 3 rolls of film. Which inverse operation will find the cost of 1 roll of film?
- A. total cost + 3
 - B. total cost - 3
 - C. total cost x 3
 - D. total cost \div 3
64. A scale model of a train engine is $1 \frac{3}{4}$ inches long. An engine on a real train is 28 feet long. If a freight car on the model train is $\frac{3}{8}$ inch long, what is the actual size of the freight car on the real train?
- A. 6 feet
 - B. 42 feet
 - C. 72 feet
 - D. 512 feet
65. Fred has a job that pays \$8 an hour. He drives a car that costs \$45 a week to maintain. He uses the inequality, $8h - 45 > 0$, to calculate the number of hours he needs to work per week in order to make more money than he spends on his car. Which solution set satisfies this inequality?
- A. $1 < h < 4$
 - B. $2 < h < 5$
 - C. $5 < h < 6$
 - D. $h > 6$

66. The chart below shows the results of a survey of 720 adults in Chicago who were asked how they travel to work.

In this sample, approximately what percentage of those surveyed rely on public transportation?

- A. 18%
- B. 37%
- C. 44%
- D. 56%



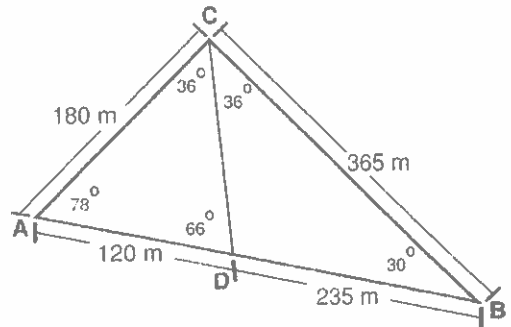
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67. Planes that depart from Prescott Airport follow a steep takeoff path. Pilots are required to gain 280 feet of altitude for every 800 feet of horizontal travel. Determine the slope of the takeoff path and state it as a percentage.

- A. 2.86%
- B. 3.5%
- C. 35%
- D. 28.60%

68. A surveyor must determine the length of a fence that will be used to divide a triangular piece of land into two sections. The fence, \overline{CD} , is the angle bisector of the angle opposite \overline{AB} .



Based on the information given, which of the following could be the length of \overline{CD} ?

- A. 120 m
- B. 180 m
- C. 200 m
- D. 235 m



IF YOU FINISH BEFORE TIME IS UP, YOU MAY CHECK YOUR WORK IN THIS SECTION ONLY.
DO NOT LOOK AHEAD TO THE NEXT SECTION IN THIS BOOKLET.