

MMLA Mathematics Assessment Items

Name: _____

Date: _____

Multiple Choice Questions

Select the one best answer for each question.

1. Jennie was assigned this problem:

$$\begin{array}{r} 146 \\ \times 25 \\ \hline \end{array}$$

She worked out the problem in this way:

$146 \times 2 = 292$, and $146 \times 5 = 730$. Then she added $292 + 730$.

She knew that her answer was wrong because her answer seemed too small. What should she have done differently?

- A. She should have multiplied 146×50 instead of 146×5 .
 - B. She should have multiplied 146×20 instead of 146×2 .
 - C. She should have multiplied 146×200 instead of 146×2 .
 - D. She should have multiplied 140×2 instead of 146×2 .
2. Which of the following is the correct computation of $4,063 \times 52$? (Do not use a calculator to figure out this question.)

A.	$\begin{array}{r} 4,063 \\ \times 52 \\ \hline 8026 \\ 200150 \\ \hline 208176 \end{array}$	B.	$\begin{array}{r} 4,063 \\ \times 52 \\ \hline 8126 \\ 20315 \\ \hline 28441 \end{array}$	C.	$\begin{array}{r} 4,063 \\ \times 52 \\ \hline 8126 \\ 2030150 \\ \hline 2038276 \end{array}$	D.	$\begin{array}{r} 4,063 \\ \times 52 \\ \hline 8126 \\ 203150 \\ \hline 211276 \end{array}$
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- A. A
- B. B
- C. C
- D. D

3. Samantha has to read a book that is 525 pages long. She has 21 days to read the book. How many pages will she need to read each day to finish on time?
- A. 21
 - B. 25
 - C. 546
 - D. 11,025
4. Andrew's family is going on vacation across the United States. They traveled 515 miles every day for 17 days. How many miles did they travel in all?
- A. 532
 - B. 4,120
 - C. 8,165
 - D. 8,755
5. Three classes of 25 students collected 8 cans of soup from each student. The cans were then to be divided between 4 charities. How many cans of soup went to each charity?
- A. 50
 - B. 108
 - C. 150
 - D. 800

6. The student council is collecting cans for a food drive. Thirty four students brought in 17 cans each. How many cans were collected?
- A. 51
 - B. 119
 - C. 328
 - D. 578
7. Rasheed has a collection of 84 Bobble Head dolls he needs to box up for the move to his new home. He can fit 7 dolls into one box. How many boxes will Rasheed need?
- A. 10
 - B. 12
 - C. 13
 - D. 21
8. Suzy has 12 cousins. She received \$15.00 from each cousin for her birthday. How much money did she receive in all?
- A. \$ 27
 - B. \$120
 - C. \$150
 - D. \$180

9. Pablo has collected 1,225 marbles. He decides to share them equally with the students in his class. There are 25 students. How many marbles will each student get?
- A. 1250 marbles
 - B. 409 marbles
 - C. 49 marbles
 - D. 48 marbles
10. The 5th grade is going on a trip to the state park. There are 1,012 students going. Each bus can hold 44 students. How many busses will they need? (Do not use a calculator to solve this problem.)
- A. 23
 - B. 26
 - C. 50
 - D. 968
11. Find $1717 \div 17$. Do not use a calculator.
- A. 11
 - B. 101
 - C. 107
 - D. 1001

12. Solve $4806 \div 15$ without using a calculator
- A. 32
 - B. $320 \text{ r } 6$
 - C. $320 \text{ r } 4$
 - D. 320
13. Solve $647 \div 21$. Do not use a calculator.
- A. $3 \text{ r } 17$
 - B. $3 \text{ r } 21$
 - C. $30 \text{ r } 8$
 - D. $30 \text{ r } 17$
14. There are 968 basketball fans waiting for the shuttle to the game. Each shuttle holds 16 fans. How many shuttles will it take to get all of the fans to the game?
- A. 60 shuttles
 - B. 61 shuttles
 - C. 66 shuttles
 - D. 68 shuttles
15. Use a factor tree to find the prime factorization of the composite number 50. Which answer expresses the number in exponential notation (powers)?
- A. 2×5^2
 - B. $2^2 \times 5^2$
 - C. $2^3 \times 5^3$
 - D. 10×5

16. Find the prime factorization for 84.

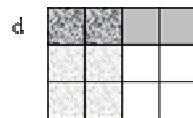
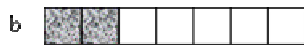
- A. 2×42
- B. $7 \times 2 \times 2 \times 3$
- C. $7 \times 4 \times 3$
- D. 7×12

17. Find the prime factorization for the number 48 expressed in exponential notation.

- A. $3^1 \times 2^4$
- B. 6×8^1
- C. $3 \times 2^4 \times 4$
- D. $3 \times 2^2 \times 4$

18. Which drawing would you use to find the product of these two fractions:

$$\frac{1}{4} \times \frac{1}{3} =$$



- A. Drawing a
- B. Drawing b
- C. Drawing c
- D. Drawing d

19. Solve this equation:

$$\frac{2}{3} \div 3 =$$

A. 2

B. 3

C. $\frac{2}{6}$

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

20. Solve the following:

$$\frac{1}{3} \div 4 =$$

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

B. $\frac{1}{7}$

C. $\frac{1}{12}$

D. 12

21. Solve this equation:

$$2 \div \frac{1}{4} =$$

- A. $\frac{1}{2}$
 - B. $\frac{2}{4}$
 - C. 2
 - D. 8
22. Ms. Humphrey's class is baking cookies. They need $3\frac{3}{5}$ pounds of sugar and $5\frac{1}{3}$ pounds of flour. When they mix the sugar and flour together, how many pounds will they have altogether?
- A. $8\frac{4}{8}$ pounds
 - B. $8\frac{3}{4}$ pounds
 - C. $9\frac{3}{15}$ pounds
 - D. $8\frac{14}{15}$ pounds

23. Choose the correct answer for this problem:

$$\frac{7}{9} - \frac{3}{8}$$

A. $\frac{10}{17}$

B. $\frac{29}{72}$

C. $\frac{56}{27}$

D. $\frac{21}{72}$

24. Choose the correct answer for this problem:

$$\frac{3}{7} + \frac{2}{9}$$

A. $\frac{5}{16}$

B. $\frac{41}{63}$

C. $\frac{6}{63}$

D. $\frac{18}{14}$

25. Tom had $\frac{7}{12}$ of a pizza. His little sister came along and took $\frac{2}{5}$ of his pizza away. How much pizza does Tom have left?
- A. $\frac{11}{60}$
- B. $\frac{5}{7}$
- C. $\frac{9}{17}$
- D. $\frac{5}{60}$
26. Jill has $\frac{3}{4}$ of a yard of ribbon. Tammy has $\frac{4}{7}$ of a yard. How much do they have altogether?
- A. $\frac{7}{11}$
- B. $\frac{40}{28}$
- C. $\frac{1}{3}$
- D. $\frac{37}{28}$
27. Paul had $3\frac{7}{8}$ cups of milk. He gave $1\frac{3}{4}$ cups of milk to his cat. How much milk did he have left? Show your work.
- A. 2 cups
- B. $2\frac{1}{8}$ cups
- C. $2\frac{4}{4}$ cups
- D. $1\frac{7}{8}$ cups

28. Nancy ate $\frac{1}{3}$ of a pizza and Gabe ate $\frac{1}{4}$ of the pizza. How much of the whole pizza is left?

A. $\frac{7}{12}$

B. $\frac{5}{12}$

C. $\frac{2}{7}$

D. $\frac{6}{7}$

29. Choose the correct answer for this problem:

$$\frac{7}{9} - \frac{3}{8}$$

A. $\frac{10}{17}$

B. $\frac{29}{72}$

C. $\frac{56}{27}$

D. $\frac{21}{72}$

30. Patty brought $\frac{1}{2}$ of a cake to class, and Joe brought $\frac{3}{4}$ of a cake on the same day. How much cake did the class have altogether? Show your work.

A. $\frac{1}{4}$ cake

B. 1 cake

C. $\frac{4}{6}$ cake

D. $1\frac{1}{4}$ cakes

31. Ms. Humphrey's class is baking cookies. They need the amounts of sugar and flour shown below. When they mix the sugar and flour together, how many pounds will they have altogether?

RECIPE:

$3\frac{3}{5}$ pounds sugar

$5\frac{1}{3}$ pounds flour

- A. $8\frac{4}{8}$ pounds
- B. $8\frac{3}{4}$ pounds
- C. $9\frac{3}{15}$ pounds
- D. $8\frac{14}{15}$ pounds
32. Jim has $\frac{1}{2}$ pound of jellybeans and Sarah has $\frac{3}{8}$ pound. Write a math sentence you could use to find how many pounds they have together.

A. $\frac{1}{2} \times \frac{3}{8}$

B. $\frac{1}{2} - \frac{3}{8}$

C. $\frac{1}{2} + \frac{3}{8}$

D. $\frac{1}{2} \div \frac{3}{8}$

33. Beth has a piece of wood $\frac{7}{8}$ of a yard long. She uses $\frac{1}{3}$ of a yard to build an airplane. Use a math sentence to show how much wood is left over.
- A. $\frac{7}{8} \div \frac{1}{3}$
- B. $\frac{1}{3} - \frac{7}{8}$
- C. $\frac{7}{8} \times \frac{1}{3}$
- D. $\frac{7}{8} - \frac{1}{3}$
34. Don has \$12.32 in his piggy bank. He collects and returns pop cans for \$3.70. Approximately how much money does he have together? (Round the answer to the nearest whole dollar.) Explain why your answer makes sense.
- A. \$8
- B. \$15
- C. \$16
- D. \$17
35. Michelle earned \$5.00 for every hour she babysat. Last week she babysat for 8 hours. She spent \$12.00 of the money she earned. Which expression could be used to find how much money she had left?
- A. $\$5.00 \times 8 + \12.00
- B. $\$5.00 + 8 - \12.00
- C. $\$5.00 \times 8 - \12.00
- D. $\$5.00 \times 8 \div \12.00

36. Ten fourth graders will each eat one-fourth of a pizza. How many pizzas need to be ordered for the ten students?
- A. 2 pizzas
 - B. 3 pizzas
 - C. 4 pizzas
 - D. 5 pizzas
37. Barb and Phil were eating a pizza with 12 pieces. Barb took $\frac{2}{4}$ of the pizza and Phil took $\frac{1}{3}$ of the pizza. What fraction of their pizza is left over?
- A. $\frac{1}{6}$
 - B. $\frac{3}{7}$
 - C. $\frac{4}{7}$
 - D. $\frac{9}{12}$
38. In the equation $\frac{1}{3} + x = \frac{5}{12}$, what does $x =$?
- A. $\frac{4}{9}$
 - B. $\frac{5}{4}$
 - C. $\frac{1}{12}$
 - D. $\frac{3}{12}$

39. Solve for x:

$$\frac{11}{12} - x = \frac{1}{4}$$

- A. $\frac{10}{12}$
- B. $\frac{8}{12}$
- C. $\frac{10}{8}$
- D. $\frac{3}{4}$

40. Solve for x:

$$x + \frac{1}{3} = \frac{3}{4}$$

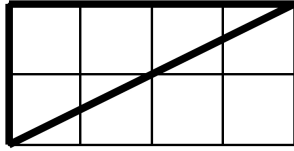
- A. $\frac{2}{1}$
- B. $\frac{5}{12}$
- C. $\frac{4}{7}$
- D. $\frac{13}{12}$

41. Which of these is NOT equivalent?

- A. 4000 ml = 4 liters
- B. 3000 ml = 3000 cm³
- C. 5000 cm³ = 5 liters
- D. 2000 ml = 20 liters

42. How much larger is one cubic foot than one cubic inch?
- A. 3 times larger
 - B. 12 times larger
 - C. 144 times larger
 - D. 1728 times larger
43. Which of the following is NOT equivalent?
- A. 1 ton = 2000 pounds
 - B. 1 mile = 5200 feet
 - C. 9 feet = 3 yards
 - D. 60 minutes = 3600 seconds
44. Skip reads the juice bottle label and finds that it contains 1.89 liters of juice. His cup only holds 240 milliliters so he wants to convert 1.89 liters to milliliters. The bottle contains how many milliliters?
- A. 1.89 milliliters
 - B. 18.9 milliliters
 - C. 189 milliliters
 - D. 1890 milliliters

45. Using the rectangle method, what is the area of this triangle?



- A. 2 square units
- B. 4 square units
- C. 6 square units
- D. 8 square units

46. How do the areas of these two figures compare? Select your answer, then explain why you think your answer is correct.

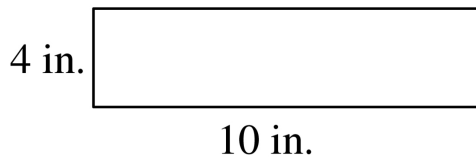


Figure A

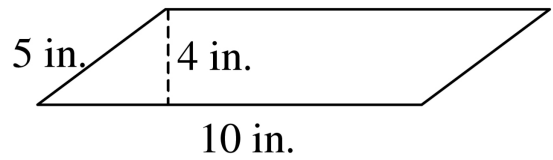
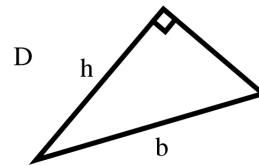
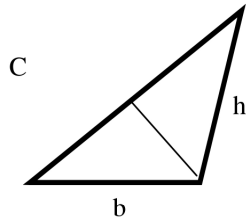
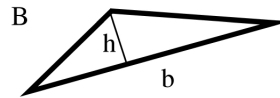
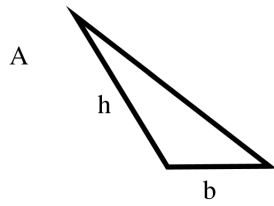


Figure B

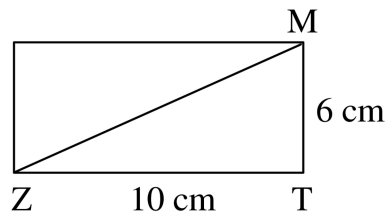
- A. The area of Figure A is greater than the area of Figure B.
- B. The area of Figure B is greater than the area of Figure A.
- C. The area of Figure A is equal to the area of Figure B.
- D. The area of Figure B is twice the area of Figure A.

47. The area of a triangle can be found using the formula $A = bh \div 2$. Which of the following figures is labeled correctly to apply this formula?



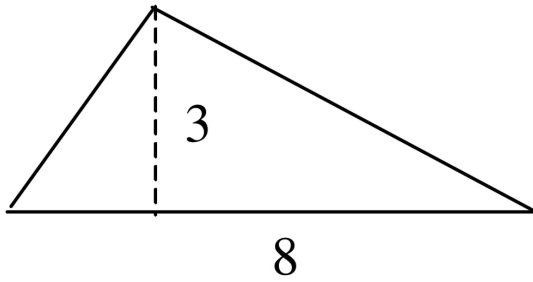
- A. A
- B. B
- C. C
- D. D

48. Use the diagram to find the area of the triangle ZMT. ($A = bh \div 2$)



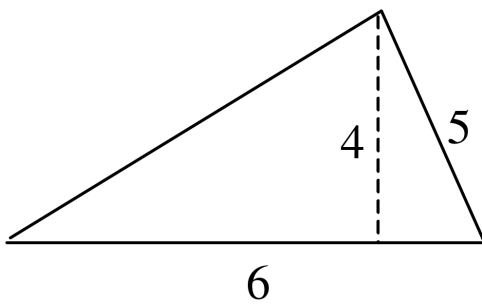
- A. 16 square cm
- B. 30 square cm
- C. 32 square cm
- D. 60 square cm

49. What is the area of this triangle?



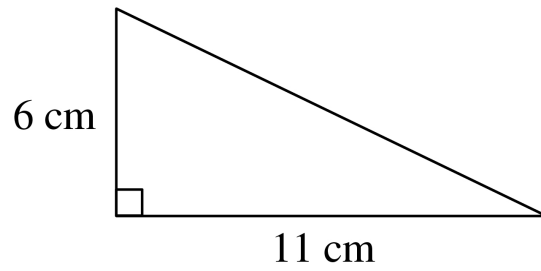
- A. 7
- B. 11
- C. 12
- D. 24

50. What is the area of this triangle? ($A = bh \div 2$)



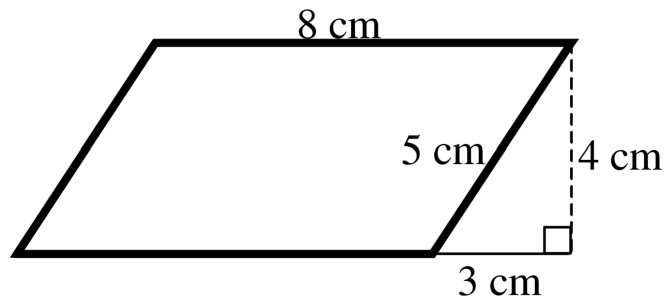
- A. $A = (5 \times 4) \div 2$
- B. $A = (5 \times 5) \div 2$
- C. $A = (6 \times 5) \div 2$
- D. $A = (6 \times 4) \div 2$

51. What is the area of this triangle? ($A = bh \div 2$)



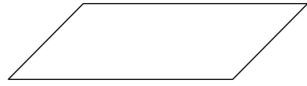
- A. 17 cm^2
- B. 33 cm^2
- C. 66 cm^2
- D. 132 cm^2

52. Find the area of the parallelogram below.



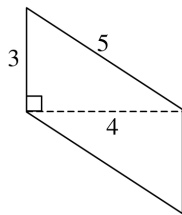
- A. 12 cm^2
- B. 24 cm^2
- C. 32 cm^2
- D. 40 cm^2

53. The area of this parallelogram is 24 square units. The base of the parallelogram is 8 units. What is the height of the figure? Circle your answer below and draw the height on the parallelogram.



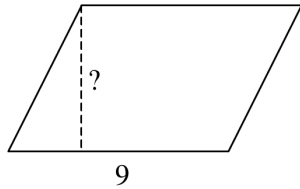
- A. 2 units
 - B. 3 units
 - C. 4 units
 - D. 6 units
54. The area of a parallelogram is 36 square inches. All of the following are possible bases and heights for this figure EXCEPT:
- A. 1 inch by 36 inches
 - B. 3 inches by 12 inches
 - C. 4 inches by 9 inches
 - D. 5 inches by 7 inches

55. Use the diagram to find the area of the parallelogram. ($A = bh$)



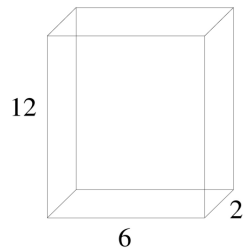
- A. 12 square centimeters
- B. 15 square centimeters
- C. 20 square centimeters
- D. 60 square centimeters

56. The base of the parallelogram below is 9 centimeters. The area is 72 square centimeters. What must the height of the parallelogram be? ($A = bh$)



- A. 6 centimeters
- B. 7 centimeters
- C. 8 centimeters
- D. 9 centimeters
57. Using unit cubes, build a solid that is 6 units in length, 2 units in width, and 3 units in height. What is the volume?
- A. 11 cube units
- B. 18 cube units
- C. 24 cube units
- D. 36 cube units
58. Using unit cubes, build a solid that is 4 units in length, 4 units in width, and 4 units in height. What is the volume?
- A. 12 cube units
- B. 16 cube units
- C. 36 cube units
- D. 64 cube units

59. A cereal box has the shape of a rectangular prism. It is 12 inches high, 6 inches wide and 2 inches deep. How many cubic inches of cereal can it hold?

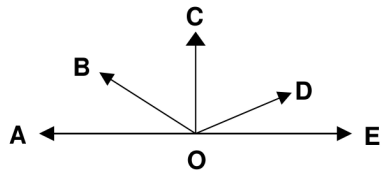


- A. 20
- B. 40
- C. 72
- D. 144
60. If the minute hand moves half way around a clock, how many degrees has the minute hand turned?
- A. 90°
- B. 180°
- C. 270°
- D. 360°
61. If you are facing North and you turn your body so that you are facing East, how many degrees have you turned?
- A. 90°
- B. 180°
- C. 270°
- D. 360°

62. If you are facing North and you turn your body to the East, then to the South, then to the West, how many total degrees have you turned?

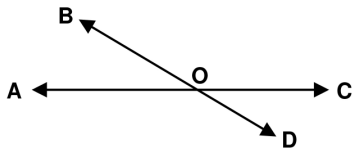
- A. 90°
- B. 180°
- C. 270°
- D. 360°

63. Which of the following angles is an acute angle?



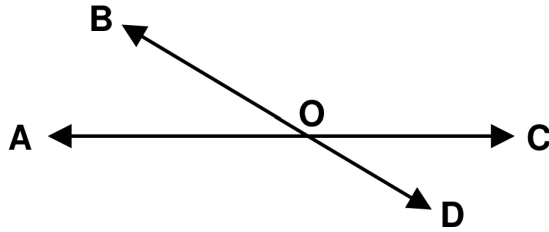
- A. $\angle BOE$
- B. $\angle AOD$
- C. $\angle BOC$
- D. $\angle COE$

64. Which of these angles is a straight angle?



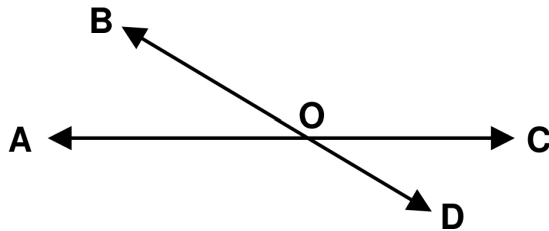
- A. $\angle AOB$
- B. $\angle AOC$
- C. $\angle AOD$
- D. $\angle COD$

65. Which pair of angles are vertical angles?



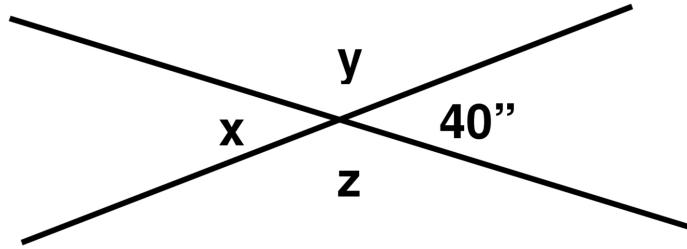
- A. $\angle AOD$ and $\angle BOC$
- B. $\angle AOB$ and $\angle BOC$
- C. $\angle BOC$ and $\angle COD$
- D. $\angle AOC$ and $\angle BOD$

66. Which of these angles is a vertical angle to $\angle DOC$?



- A. $\angle AOB$
- B. $\angle BOC$
- C. $\angle AOD$
- D. $\angle DOA$

67. What is the measure of angle y ? (Do NOT use a protractor to find your answer.)

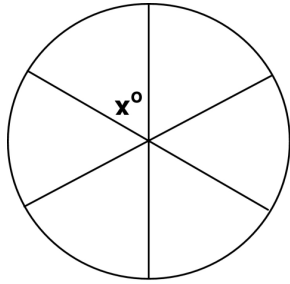


- A. 40
B. 50
C. 140
D. 180
68. A gate is open at a 50° angle. How many more degrees will the gate have to open until it is flat against the fence?



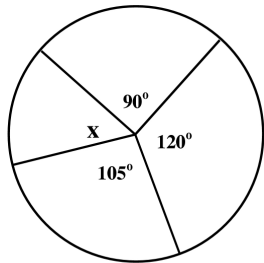
- A. 40°
B. 100°
C. 130°
D. 310°

69. A pizza is divided into 6 pieces. Each piece is the same size, as shown in the picture. Think about what the total angle measurement is for all 6 pieces. Then calculate the angle measure for one piece, angle x .



One piece of pizza has an angle measure of

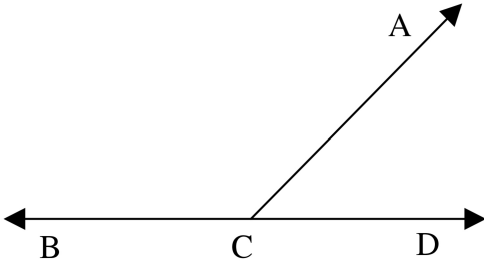
- A. 30°
 - B. 40°
 - C. 50°
 - D. 60°
70. In a spinner game, the spinner has 4 regions of unequal size, as shown below.



How many degrees are in the missing angle x ? (Do not use a protractor.)

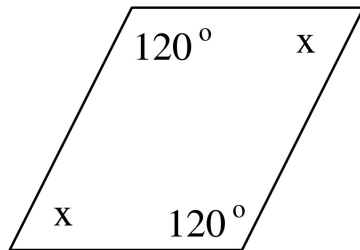
- A. 30°
- B. 45°
- C. 60°
- D. 75°

71. $\angle ACD$ measures 60° . Find the measurement of $\angle ACB$.



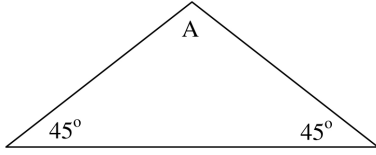
- A. 120°
- B. 130°
- C. 160°
- D. 180°

72. This is a parallelogram. In all parallelograms, the opposite angles are equal. Find the measure of angle x.



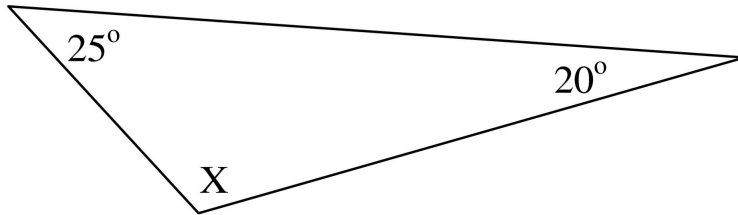
- A. 50°
- B. 60°
- C. 70°
- D. 120°

73. What is the measurement of angle A?



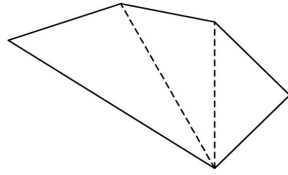
- A. 45°
- B. 60°
- C. 90°
- D. 120°

74. What is the measure of angle X in this triangle?



- A. 45°
- B. 75°
- C. 120°
- D. 135°

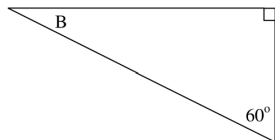
75. What is the sum of the angles in this polygon? Choose the correct answer, then explain how you figured it out.



- A. 180°
- B. 360°
- C. 540°
- D. 720°
76. In a quadrilateral, two of the angles each have a measure of 110° , and the measure of the third angle is 90° . What is the measure of the remaining angle?

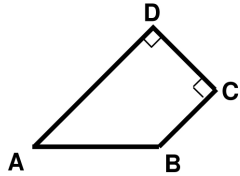
- A. 50°
- B. 90°
- C. 130°
- D. 160°

77. In this triangle, what is the measure of angle B?



- A. 30°
- B. 45°
- C. 60°
- D. 180°

78. If angle A equals 45° , what is the measure of angle B? Choose the correct answer, then explain how you figured it out.

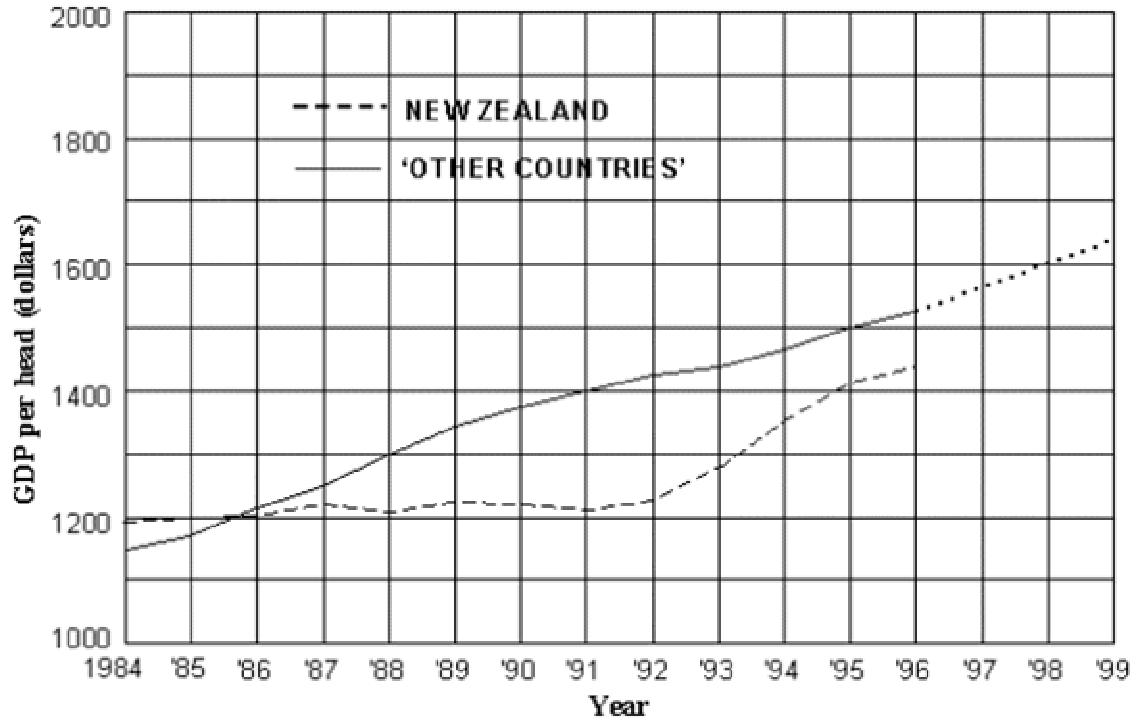


- A. 90°
B. 120°
C. 130°
D. 135°
79. How many more magazines were sold in 1990 than in 1989?



- A. about 50 more magazines
B. about 100 more magazines
C. about 200 more magazines
D. about 250 more magazines

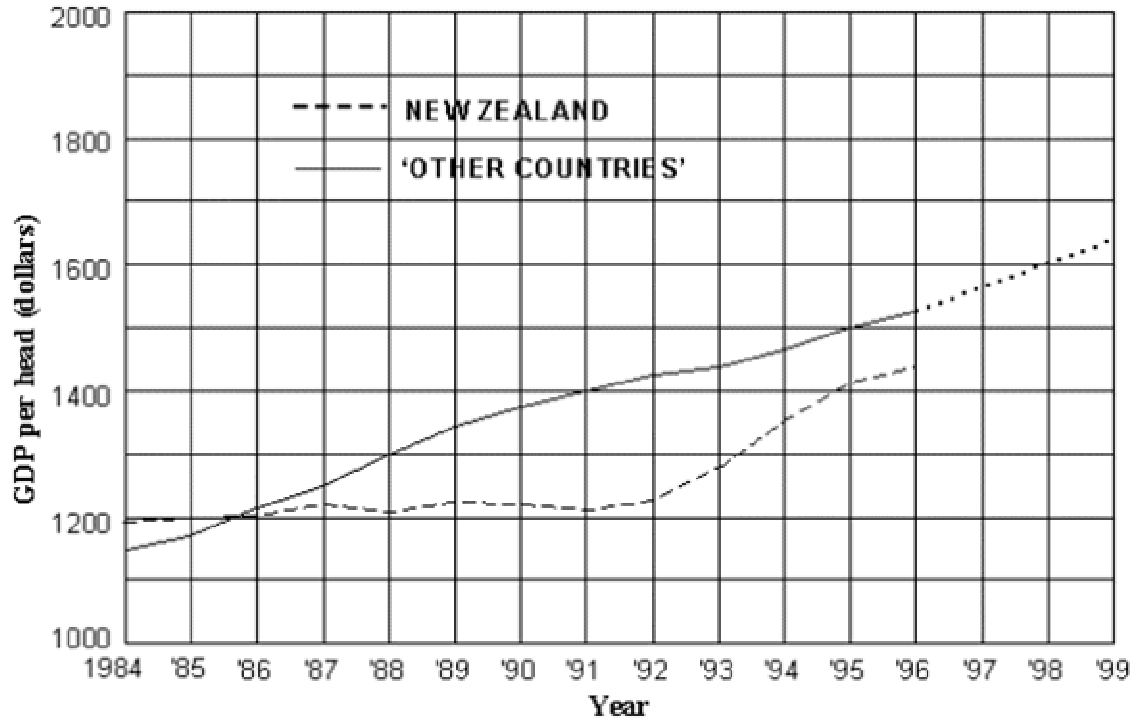
80. Using the graph below, when did New Zealand's GDP increase the most?



Gross Domestic Product (GDP) for
New Zealand and Other Countries

- A. 1986-87
- B. 1988-89
- C. 1992-93
- D. 1995-96

81. In 1988 what was the difference of the GDP for Other Countries and New Zealand?



Gross Domestic Product (GDP) for New Zealand and Other Countries

- A. about \$100 per head
- B. about \$200 per head
- C. about \$1200 per head
- D. about \$1300 per head

82. Family A has 2 children, Family B has 1 child, Family C has 1 child, and Family D has 4 children. What is the mean number of children for the families?

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

- 83.** Family A has 2 children, Family B has 0 children, Family C has 1 child, and Family D has 0 children. Find the mode for this data.
- A. 0
 - B. 1
 - C. 2
 - D. 3
- 84.** Last summer Samantha swam the backstroke in five swim meets. Her times were:
56 seconds 56 seconds 44 seconds 47 seconds 42 seconds
- Find the mean of her times. You may use a calculator.
- A. 47
 - B. 49
 - C. 50
 - D. 56
- 85.** Mary's quiz scores were 92, 85, 78, 92, 71, 77, and 80. She told her mother she had an average of 92 for her quiz scores. Which term best describes her average score?
- A. mean
 - B. median
 - C. mode
 - D. range

86. What is the mean of this set of numbers?

4, 8, 3, 2, 5, 8, 12

A. 4

B. 5

C. 6

D. 7

87. Students collected books for a book drive. Five students collected the following number of books:

student 1: 17 books

student 2: 8 books

student 3: 10 books

student 4: 8 books

student 5: 12 books

What is the mode of this set of data? _____

What is the average (mean) number of books collected per student?

A. 8 books

B. 10 books

C. 11 books

D. 12 books

88. The mean of nine test scores is 61. If a score of 71 is added to the group of scores, what is the new mean?

- A. 62
- B. 65
- C. 66
- D. 68

89. What is the difference between the mean salary of the workers and the mean salary of everyone including the President and Vice-President? You may use a calculator.

Position	Salary
President	\$256,000
Vice-President	\$127,000
Worker #1	\$35,000
Worker #2	\$20,000
Worker #3	\$18,000
Worker #4	\$31,000
Worker #5	\$24,000
Worker #6	\$21,000
Worker #7	\$26,000

- A. \$25,000
- B. \$37,000
- C. \$45,000
- D. \$62,000

90. The table shows the scores of 20 students on a history test. What is the average student score?

Score	Number of Students
90	3
85	5
80	3
75	4
70	2
60	0
55	3

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- A. 26
- B. 74
- C. 77
- D. 85
91. Tom and Carlos were comparing their test scores in math:

Tom: 78, 70, 80, 92

Carlos: 82, 68, 88, 94

Find the **mean** scores for Tom and Carlos.

- A. Tom: 79 Carlos: 81
- B. Tom: 80 Carlos: 83
- C. Tom: 81 Carlos: 84
- D. Tom: 90 Carlos: 90

92. Sandy had test scores of 20, 25, 17, 22 and 21 (out of 25 total). What is her average (mean) score?

On the next 3 tests Sandy's scores were 24, 24 and 23. What is her average (mean) now?

Explain how you figured this out.

- A. 24
- B. 23
- C. 22
- D. 21

Open-Ended Questions

Provide your answer in the space provided.

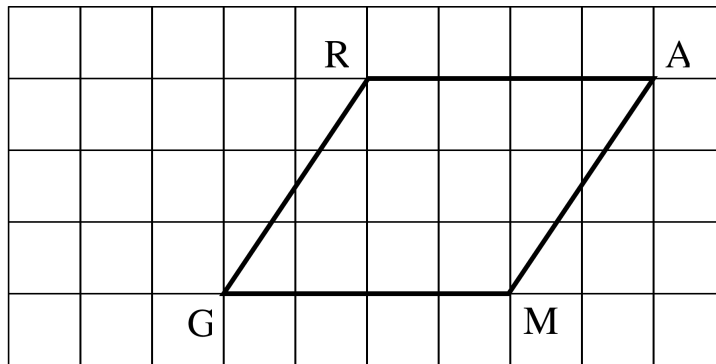
1. Philip solved the following problem incorrectly. Explain his mistake.

$$\begin{array}{r} 1659 \\ \times 21 \\ \hline 1659 \\ +3318 \\ \hline 4977 \end{array}$$

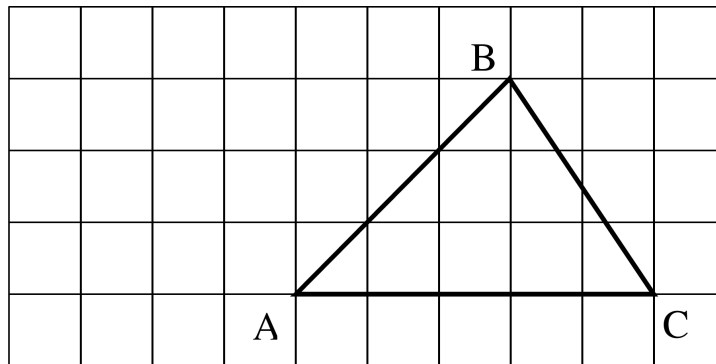
2. Find the product without using a calculator. Show your work.

3241 multiplied by 37 =

6. Show with a drawing how you would find the area of this parallelogram by using rectangles and triangles? Then find and label the area. Each square is 1 square unit.

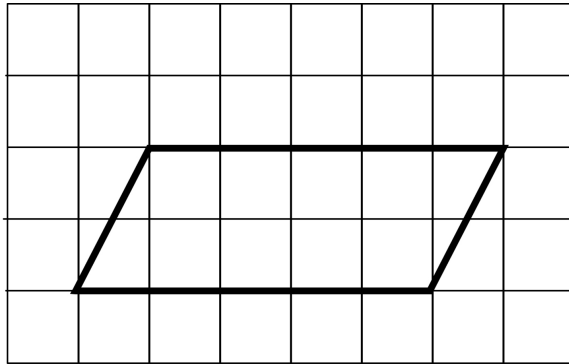


7. Show with a drawing how you would find the area of this triangle by using rectangles or parallelograms? Then find and label the area. Each square is 1 square unit.



8. Explain why the formula for finding the area of a triangle ($A = \frac{1}{2} bh$) makes sense in terms of the area of a rectangle (use a drawing in your explanation).

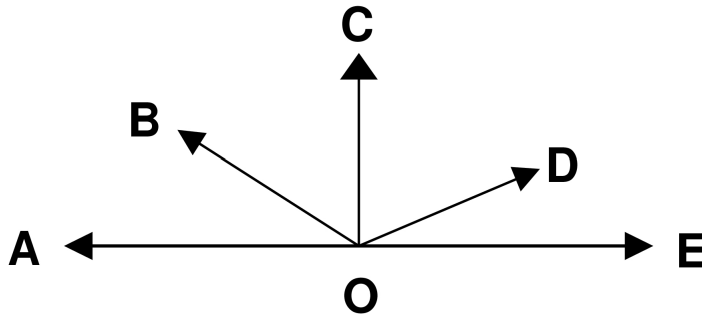
9. Label the base and height of this parallelogram. Then find the area. ($A = bh$)



Each box is one square unit.

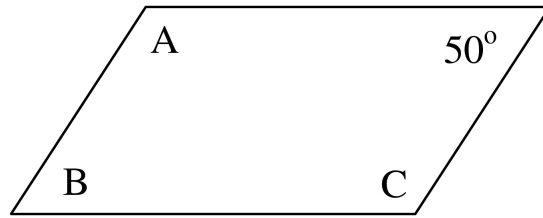
$A =$ _____

10. Use a protractor to measure the following angles. Then classify them as acute, obtuse, or right angles.



- $\angle DOE =$ _____ This angle is _____ (acute, obtuse or right?)
 $\angle COD =$ _____ This angle is _____ (acute, obtuse or right?)
 $\angle BOE =$ _____ This angle is _____ (acute, obtuse or right?)
 $\angle AOC =$ _____ This angle is _____ (acute, obtuse or right?)

11. This parallelogram has one angle of 50° . What are the measures of the other angles?



- a. Measure of angle A _____
b. Measure of angle B _____
c. Measure of angle C _____
12. DaShawn jogs six miles every morning. On Saturday she kept track of her times at several points along the way and recorded the data in the table below. Construct a line graph using her data (distance, time). Be sure to label the scale and title for each of the axes.

Distance (miles)	Time (minutes)
0	0
2	20
4	50
6	70