Kansas City Area Teachers of Mathematics
2016 KCATM Math Competition

GEOMETRY AND MEASUREMENT TEST
GRADE 5

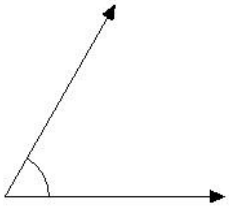
INSTRUCTIONS

- **Do not open this booklet** until instructed to do so.
- Time limit: **15 minutes**
- You **may use calculators** on this test.
- Use the π **key** on your calculator **or 3.14159** as the approximation for pi.
- Mark your answer on the answer sheet by **FILLING in the oval**.
- You **may not use rulers, protractors, or other measurement devices** on this test.

Student Name _____

School _____

51. Name the **type of angle** shown below.



A. Straight B. Acute C. Obtuse

D. Right E. None of the above

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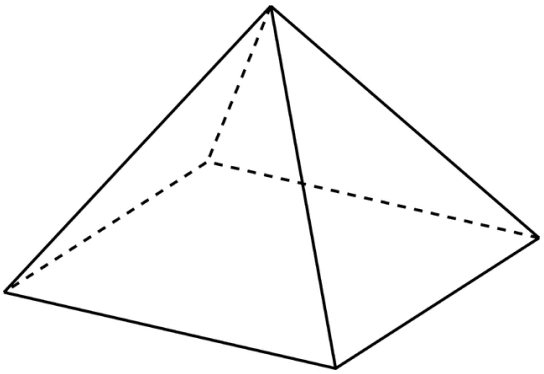
52. Identify the **geometric shape** shown below.



A. Rectangular Prism B. Rectangular Pyramid

C. Triangular Prism D. Triangular Pyramid

E. None of the above

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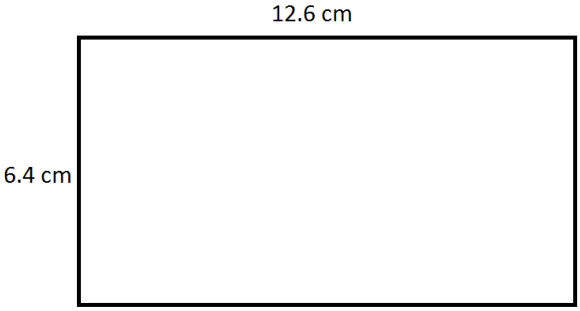
53. Find the **area** of the rectangle:



A. 19 cm B. 38 cm^2

C. 80.64 cm^2 D. 161.28 cm^2

E. None of the above

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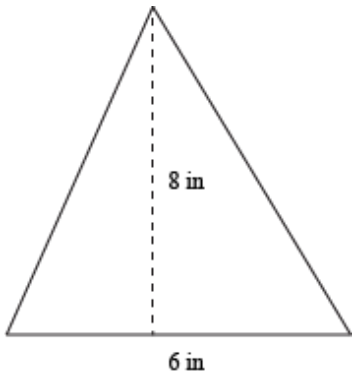
54. Find the **area** of the triangle:

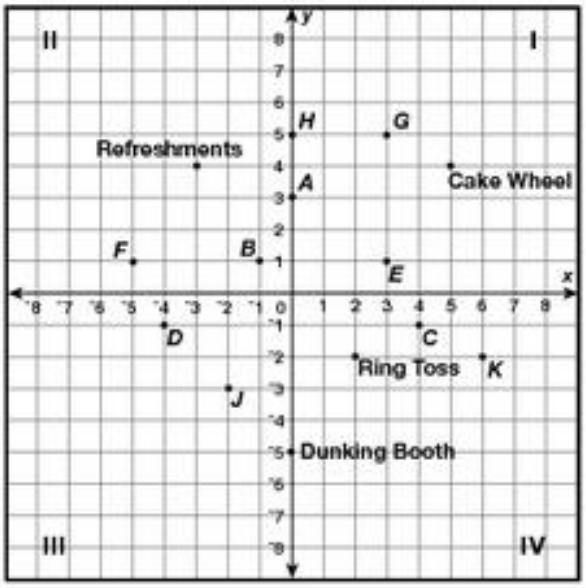
A. 48 in. B. 48 in^2

C. 12 in^2 D. 24 in^2

E. None of the above



Use the Math Fair Coordinate grid for problems #55-57.



55. What are the **coordinates of the Dunking Booth**?

A. (-5, 0) B. (0, -5) C. (5, 0) D. (0, 5) E. None of the above

56. What is the **distance from the Refreshments to the Cake Walk**?

A. 6 B. 7 C. 8 D. 9 E. None of the above

57. If three of the four vertices of a rectangle are H, G, and E, **what would be the coordinates of the 4th vertex of the rectangle?**

A. (-5, 5) B. (1, 0) C. (-1, 0) D. (0, 1) E. None of the above

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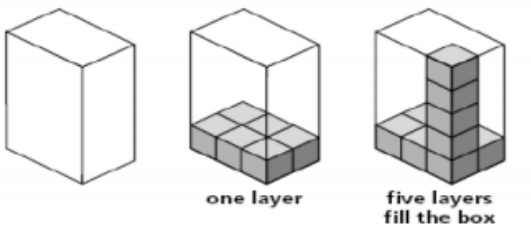
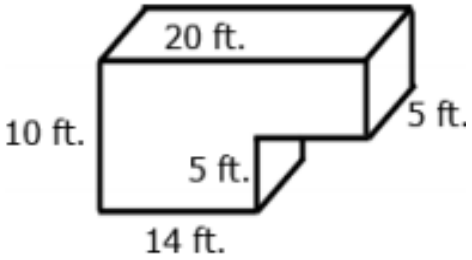
58. Looking at the model of the volume of the rectangular solid, what would be the **volume** of the rectangular solid?



A. 6 cu. units B. 10 cu. units C. 30 cu. units D. 26 cu. units E. None of the above

59. What is the volume of the swimming pool below that has a deep end that is 10 ft. deep and a shallow area that is 5 ft. deep.



A. 1000 cu. ft B. 850 cu. ft. C. 54 cu. ft. D. 70,000 cu. ft. E. None of the above

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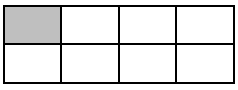
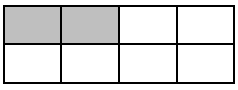
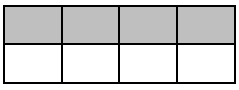
60. A parallelogram has both pair of opposite sides parallel. **Which of the following geometric shapes are parallelograms?**

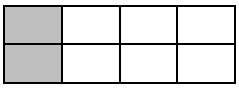
A. Rectangle B. Square C. Rhombus D. A, B, and C E. None of the above

61. **Which of the following areas show <u>half of a half</u> of the given rectangle?**

A. 

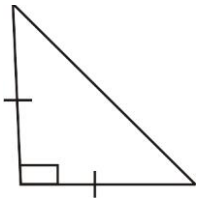
B. 

C. 

D. 

E. None of the above

62. **Name the triangle by sides and angles**.



A. Isosceles Scalene Triangle B. Isosceles Right Triangle

C. Equilateral Triangle D. Scalene Right Triangle

E. None of the above

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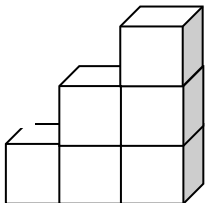
63. Amelia went to the store to buy 1 liter of milk, but they only had smaller containers of 250 ml. **How many of them would she have to buy to have 1 liter of milk?**

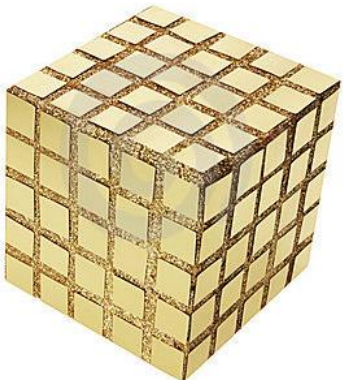
A. 10 B. 8 C. 4 D. 2 E. None of the above

64. You build a staircase out of cubes. If it takes 6 cubes to make 3 steps, how many would it take to make 11 steps?



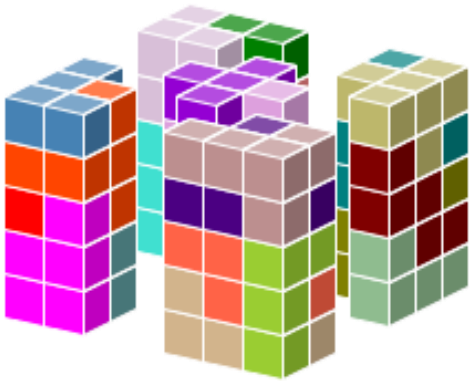
A. 66 B. 33 C. 99 D. 60 E. None of the above

65. Given the solid shape, **how many cubes** would be in it?



A. 75 B. 125 C. 150 D. 60 E. None of the above

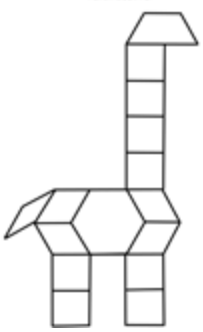
66. What would be the **total number of cubes** in the 5 shapes below?



A. 175 B. 125 C. 150

D. 200 E. None of the above

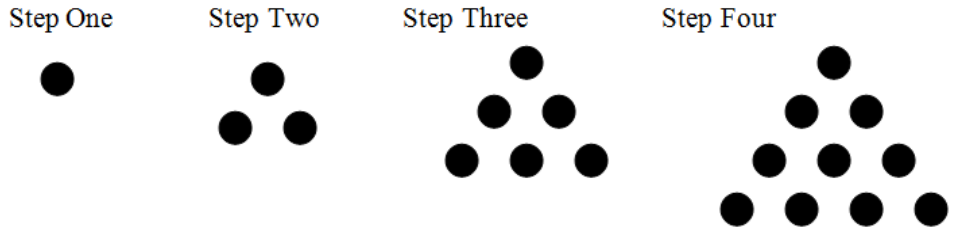
67. **Which shapes are in the giraffe?**



A. Hexagons B. Parallelograms C. Trapezoid D. Squares

E. All of the above

68. How many dots would be in Step 7 of the triangular numbers?



A. 15 B. 21 C. 28 D. 35 E. None of the above

Convert from one unit to the other within the metric system for problems #69-73.

69. **646.73 cm = ___ mm**

A. 64,673 mm B. 64.673 mm C. 646,730 mm D. 6,467,300 mm E. None of the above

70. **0.530 liters = ___ ml**

A. 5,300 ml B. 530 ml C. 53.0 ml D. 5,300,000 ml E. None of the above

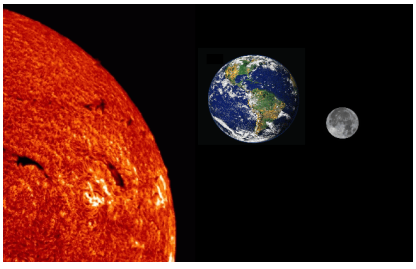
71. **80 grams = ___ kg**

A. 8.0 kg B. 0.80 kg C. 0.08 kg D. 0.008 kg E. None of the above

72. The longest race in the Summer Olympics is the 10,000 meter race. **How far is that in kilometers?**

A. 1,000 km B. 100 km C. 0.1 km D. 10 km E. None of the above

73. The distance from Earth to the sun is 149.6 million kilometers. **How far is that in meters?**



A. 1496 m B. 149,600 m

C. 1,496,000,000 m D. 149.6 billion

E. None of the above

Convert from one unit to the other within the standard system for problems #73-77.

74. It is one mile to school. **How far is that in feet?**

A. 3,000 ft. B. 5,000 ft. C. 5,280 ft. D. 6,280 ft. E. None of the above

75. A deck may be 15 ft. long, **how far is that in inches?**

A. 150 in. B. 180 in. C. 200 in. D. 120 in. E. None of the above

76. A car may weigh 2 tons. **How many pounds would that be?**

A. 1,000 lbs. B. 2000 lbs. C. 3,000 lbs. D. 4,000 lbs. E. None of the above

77. You are purchasing 2 gallons of lemonade. You want to pour 8 oz. glasses of lemonade. **How many 8 oz glasses can you get out of 2 gallons?**

A. 32 glasses B. 64 glasses C. 48 glasses D. 16 glasses E. None of the above

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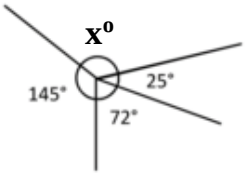
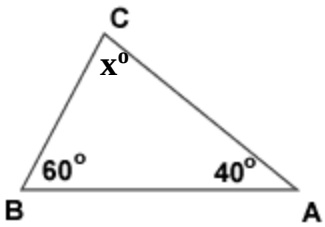
78. What is the **measure of the missing angle, x^o** ?



A. 97° B. 118° C. 165° D. 155°

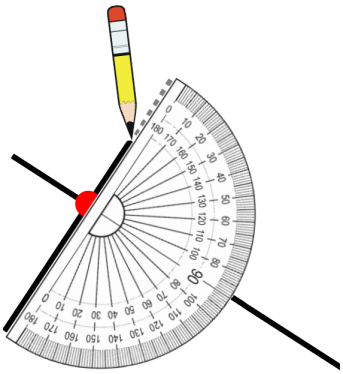
E. None of the above.

79. Find the **missing angle measure, x^o,** in the triangle.



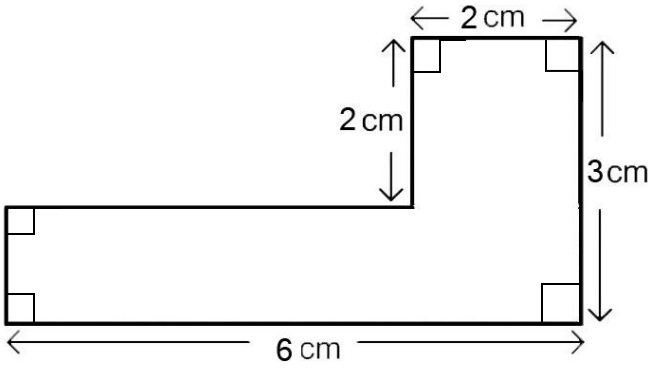
A. 40° B. 60° C. 80° D. 100° E. None of the above

80. What instrument and what type of lines are shown?



A. Compass; perpendicular
B. Compass; parallel
C. Protractor; perpendicular
D. Protractor; parallel
E. None of the above

Use the diagram for #81-82.



81. What is the **perimeter** of the figure above?

A. 13 cm B. 14 cm C. 15 cm D. 18 cm E. None of the above

82. What is the **area** of the figure above?

A. 18 cm^2 B. 10 cm^2 C. 72 cm^2 D. 13 cm^2 E. None of the above

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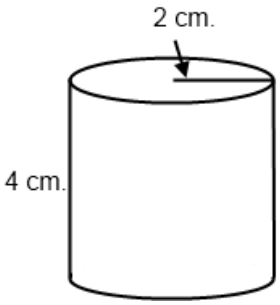
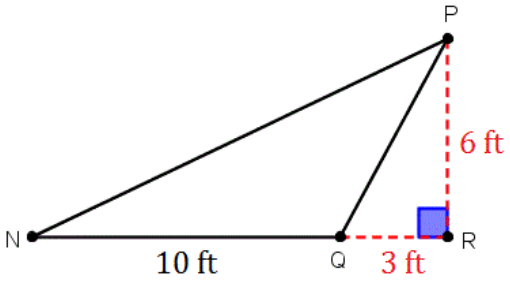
83. The volume formula for a cylinder is : $V = \pi r^2 h$ Find the **volume** of the cylinder below to the **nearest hundredth.**



A. 50.27 cm^3 B. 18.85 cm^3
C. 25.13 cm^3 D. 100.53 cm^3
E. None of the above

84. What is the **area** of the obtuse triangle?



A. 60 ft.^{2} B. 18 ft.^{2}

C. 39 ft^2 D. 30 ft.^{2}

E. None of the above

85. **What time do you have to leave for the airport** to be 1.5 hrs. early, so you can check in for your flight? It takes you 45 minutes to drive to the airport. Your plane departs at 12:15pm.

A. 9:45 am B. 10:00am C. 10:15am D. 10:30am E. None of the above

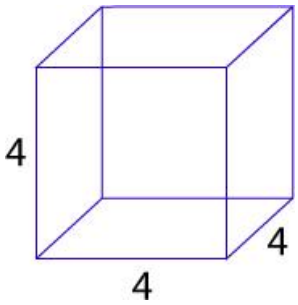
86. **What geometric shape are beehives?**

A. Octagon B. Decagon

C. Hexagon D. Pentagon

E. None of the above

87. Surface area is the area of the outside of a package. What is the **surface area** of the cube below?

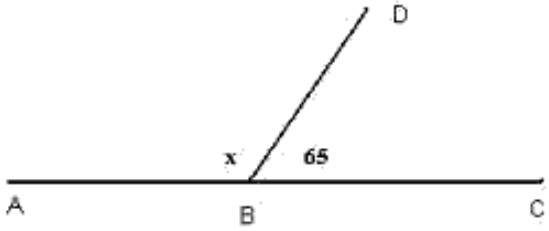


A. 64 sq. units B. 48 sq. units

C. 72 sq. units D. 96 sq. units

E. None of the above

88. Supplementary angles are two angles whose sum is 180º. If one angle is given below, **find the angle measure of its supplement.**

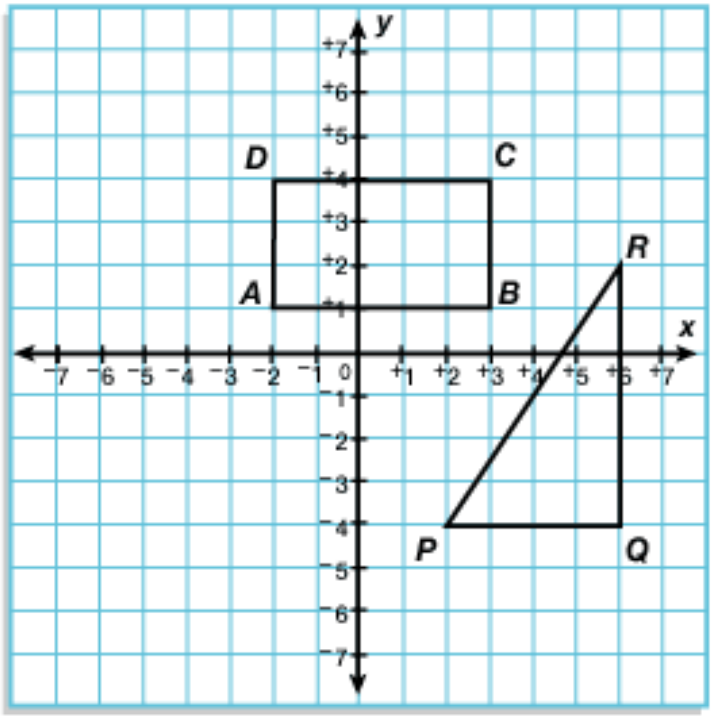


A. 90º B. 180º

C. 125º D. 115º

F. None of the above

Use the rectangle and the triangle graphed for problems #89-90.



89. What is the **area of the rectangle**?

A. 16 sq. units B. 15 sq. units C. 18 sq. units D. 20 sq. units
E. None of the above

90. **Which figure has the larger area and by how much?**

A. Rectangle by 3 sq. units B. Triangle by 3 sq. units
C. Rectangle by 9 sq. units D. Triangle by 9 sq. units
E. The areas are equal.

Shade the correct answer!
Example: A ● C D E

Name_____

School _____

51.	A	B	C	D	E	71.	A	B	C	D	E
52.	A	B	C	D	E	72.	A	B	C	D	E
53.	A	B	C	D	E	73.	A	B	C	D	E
54.	A	B	C	D	E	74.	A	B	C	D	E
55.	A	B	C	D	E	75.	A	B	C	D	E
56.	A	B	C	D	E	76.	A	B	C	D	E
57.	A	B	C	D	E	77.	A	B	C	D	E
58.	A	B	C	D	E	78.	A	B	C	D	E
59.	A	B	C	D	E	79.	A	B	C	D	E
60.	A	B	C	D	E	80.	A	B	C	D	E
61.	A	B	C	D	E	81.	A	B	C	D	E
62.	A	B	C	D	E	82.	A	B	C	D	E
63.	A	B	C	D	E	83.	A	B	C	D	E
64.	A	B	C	D	E	84.	A	B	C	D	E
65.	A	B	C	D	E	85.	A	B	C	D	E
66.	A	B	C	D	E	86.	A	B	C	D	E
67.	A	B	C	D	E	87.	A	B	C	D	E
68.	A	B	C	D	E	88.	A	B	C	D	E
69.	A	B	C	D	E	89.	A	B	C	D	E
70.	A	B	C	D	E	90.	A	B	C	D	E

Shade the correct answer!
Example: A ● C D E

Name_____

School _____

ANSWER KEY

51.	A	●	C	D	E	71.	A	B	●	D	E
52.	A	●	C	D	E	72.	A	B	C	●	E
53.	A	B	●	D	E	73.	A	B	C	D	●
54.	A	B	C	●	E	74.	A	B	●	D	E
55.	A	●	C	D	E	75.	A	●	C	D	E
56.	A	B	●	D	E	76.	A	B	C	●	E
57.	A	B	C	●	E	77.	●	B	C	D	E
58.	A	B	●	D	E	78.	A	●	C	D	E
59.	A	●	C	D	E	79.	A	B	●	D	E
60.	A	B	C	●	E	80.	A	B	●	D	E
61.	A	●	C	D	E	81.	A	B	C	●	E
62.	A	●	C	D	E	82.	A	●	C	D	E
63.	A	B	●	D	E	83.	●	B	C	D	E
64.	●	B	C	D	E	84.	A	B	C	●	E
65.	A	●	C	D	E	85.	A	●	C	D	E
66.	A	●	C	D	E	86.	A	B	●	D	E
67.	A	B	C	D	●	87.	A	B	C	●	E
68.	A	B	●	D	E	88.	A	B	C	●	E
69.	A	B	C	D	●	89.	A	●	C	D	E
70.	A	●	C	D	E	90.	●	B	C	D	E