

# ACTAAP

Arkansas Comprehensive Testing, Assessment, and Accountability Program

## Released Item Booklet

### Benchmark Examination Grade 7

February and March 2006  
Administration

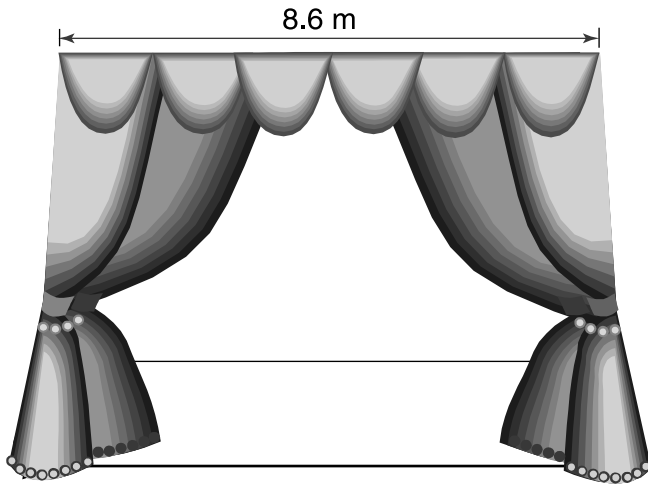
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**Arkansas Department of Education**

CALCULATOR NOT PERMITTED — ITEMS 1–8

1. A decorator puts trim on the front top edge of the stage shown in the figure below.

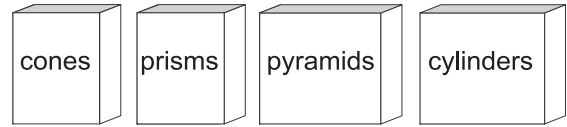


How many centimeters of trim did she use?

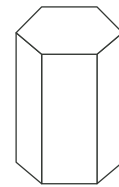
- A. 0.086
  - \* B. 860
  - C. 8,600
  - D. 86,000
2. A number cube is a cube whose faces are numbered from 1 to 6. If two number cubes fall randomly to the ground, what is the theoretical probability that the numbers showing on the two cubes are the same?

- A.  $\frac{1}{36}$
- \* B.  $\frac{1}{6}$
- C.  $\frac{5}{6}$
- D.  $\frac{35}{36}$

3. Darla is sorting her building blocks into one of four labeled boxes shown below.



Into which box should she place the following building block?

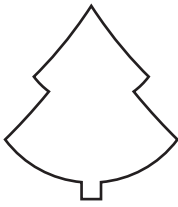


- A. cones
  - \* B. prisms
  - C. pyramids
  - D. cylinders
4. In which of the following units can a student **best** describe the length of the tip of a pencil?
- A. inches
  - B. ounces
  - C. centigrams
  - \* D. millimeters

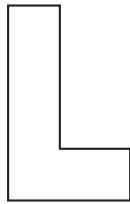
**PART II Released Mathematics Items – 2006 Benchmark Grade 7**

5. Which of the following **best** represents a figure with only one line of symmetry?

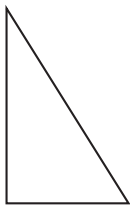
\* A.



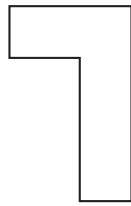
B.



C.



D.



6. Two football teams, the Cougars and the Mustangs, each play a 15-game season. The stem-and-leaf plots below summarize the number of points the teams scored in each game.

Cougars		Mustangs	
1	3 4 4 5 6	1	7 8 8 9 9
2	1 2 8 8 8	2	2 3 8 8 8
3	2 3 4 5 9	3	4 5 6 7 8

Which conclusion can be drawn from the data?

- A. The Mustangs have the higher mode.  
 \* B. The Mustangs have the higher mean.  
 C. The Cougars have the higher median.  
 D. The two teams have the same mean, the same median, and the same mode.

7. A campground uses the following formula to determine its camping fee.

$$C = 5.50 + 6.00n$$

If  $C$  = the total cost, and  $n$  = the number of nights a customer stays, how much will the campground charge a customer who stays for 10 nights?

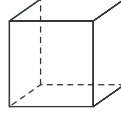

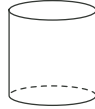

- A. \$115.00  
 B. \$ 75.00  
 \* C. \$ 65.50  
 D. \$ 21.50

8. What are the next three numbers in the pattern below?

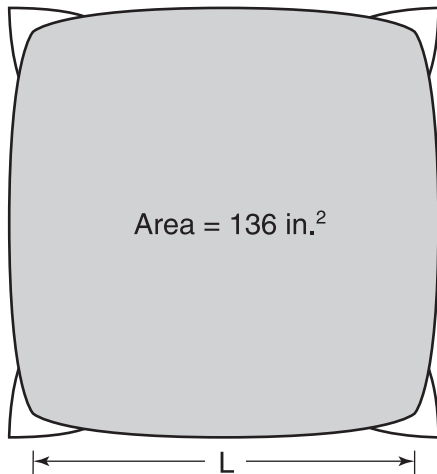
144 121 100 81 \_\_\_ \_\_\_ \_\_\_

- A. 49 36 24  
 B. 49 36 25  
 C. 64 49 35  
 \* D. 64 49 36

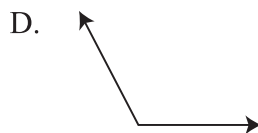
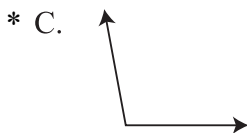
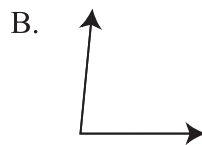
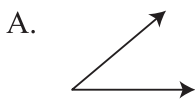
## CALCULATOR PERMITTED — ITEMS 9–40

9. Peter wants to determine how students in his school feel about the quality of the cafeteria food. His school has **approximately** 800 students. He interviews the 5th, 10th, 15th, 20th, and 25th student that enters the cafeteria during lunch period. Four of the 5 students dislike the food. Is the sample representative of the school population?
- \* A. no, because the sample was too small
  - B. yes, because there was such strong agreement
  - C. yes, because the sample was randomly selected
  - D. no, because every 10th student should have been selected
10. Luis is playing a video game in which he receives 200 points for jumping over 1 block, 400 points for jumping over 2 blocks, and 800 points for jumping over 3 blocks. Based on the pattern so far, how many points will he receive for jumping over 4 blocks?
- \* A. 1,600
  - B. 1,200
  - C. 1,000
  - D. 800
11. When data are presented in a box-and-whisker graph, which of the following is immediately apparent?
- A. the mode
  - B. the mean
  - \* C. the median
  - D. the score at the 40th percentile
12. A straight line segment could **not** be drawn on the surface of which of the following solids?
- A. 
  - B. 
  - C. 
  - \* D. 
13. The quotient of  $3598 \div 89$  is **approximately** equal to which of the following numbers?
- A. 4
  - \* B. 40
  - C. 50
  - D. 400
14. What is the quotient of  $257 \div 10^4$ ?
- A. 0.000257
  - B. 0.00257
  - \* C. 0.0257
  - D. 0.257

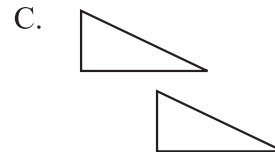
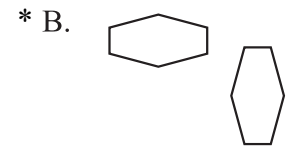
15. A carpenter is assigned to build a wooden chair seat, as shown below. If the area of the seat is  $136 \text{ in.}^2$ , which of the following measurements is closest to the length of edge L?



- A. 7 in.  
 \* B. 12 in.  
 C. 14 in.  
 D. 20 in.
16. Ramon is building a doghouse. He wants the roof of the doghouse to be at an angle greater than 90 degrees, but less than 110 degrees. Which of the following angles could he use for the roof? Use your protractor to help you.



17. Which pair of figures shows more than just a translation?



18. Bill and Tisha work for a lawn mowing company. They each earn \$12.00 for every yard they mow. Which equation illustrates the total amount of money they earn from mowing lawns? Let  $b$  = the number of lawns Bill mows, and  $t$  = the number of lawns Tisha mows.

A.  $(12 + 12)b = \text{total money}$

\* B.  $12(b + t) = \text{total money}$

C.  $12(2t) = \text{total money}$

D.  $12bt = \text{total money}$

19. A football team plans to raise ticket prices next season by 9.5%. If each football admission ticket costs \$34.50 this season, **approximately** how much will an admission ticket cost next season?

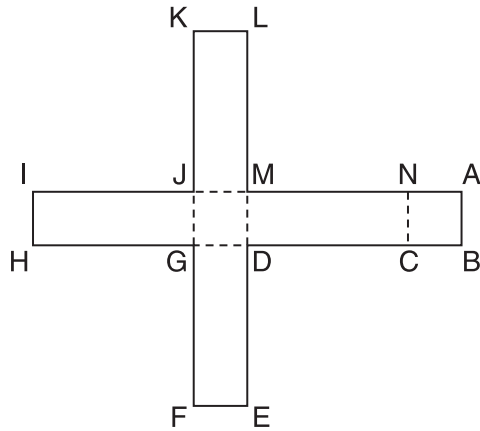
A. \$36

\* B. \$38

C. \$42

D. \$45

20. If the flat piece of cardboard below folds to form a box with no gaps, then measuring the length of segment NM also gives the length of which segment?



- A.  $\overline{AN}$   
 B.  $\overline{LK}$   
 \* C.  $\overline{GF}$   
 D.  $\overline{JD}$
21. Tamara earns money by raking yards. She determines how much she charges customers based on the sizes of their yards. Her initial fee is \$10.00, plus \$0.12 per square foot of the customer's yard. Which equation should she use to correctly calculate the amount to charge,  $c$ , for a yard that is  $s$  square feet in size?
- A.  $c = 10.12$   
 B.  $c = 10.12s$   
 \* C.  $c = 10 + 0.12s$   
 D.  $10 = 0.12s + c$

22. Which of the following nets, or patterns, could be folded along the lines to form a closed cubic box?

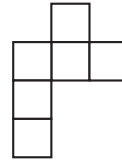


Figure 1

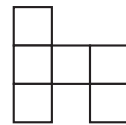


Figure 2

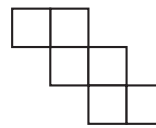


Figure 3

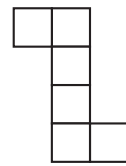


Figure 4

- \* A. only 3 and 4  
 B. only 1 and 3  
 C. only 2 and 3  
 D. only 1 and 2
23. Sheila goes to the office supply store to buy pens. She has the two options below.

Number of Pens in Box	Price of Box
5	\$10
12	\$18

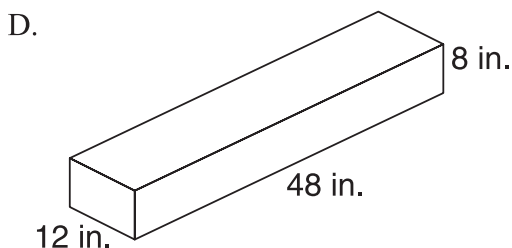
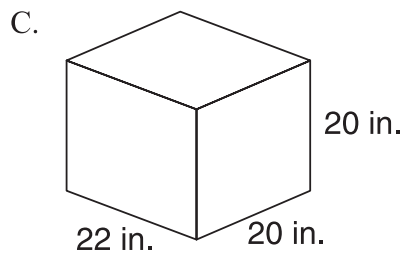
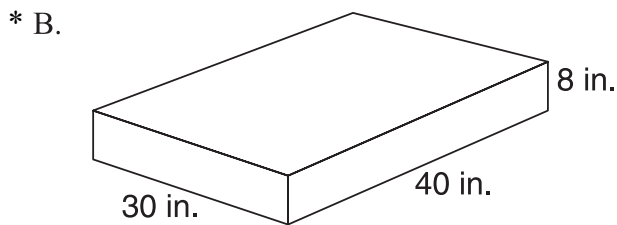
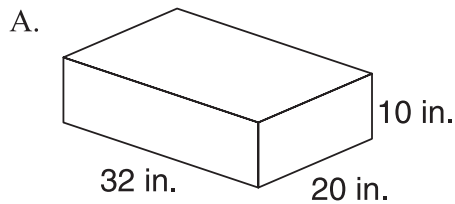
- How much does she save per pen by buying a box of 12 pens instead of a box of 5 pens?
- A. \$0.33  
 \* B. \$0.50  
 C. \$0.67  
 D. \$0.80

**PART II Released Mathematics Items – 2006 Benchmark Grade 7**

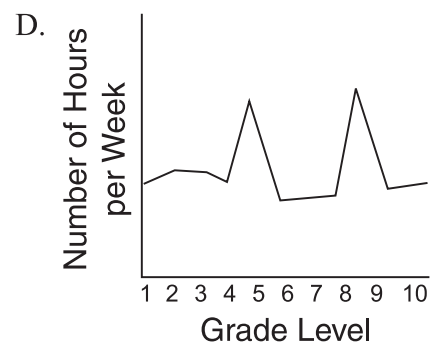
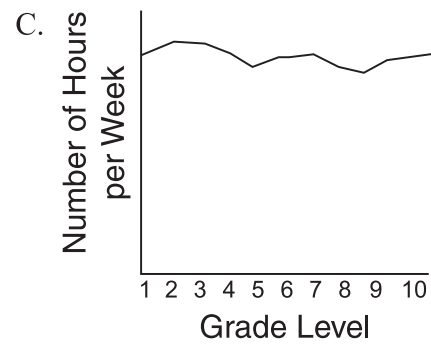
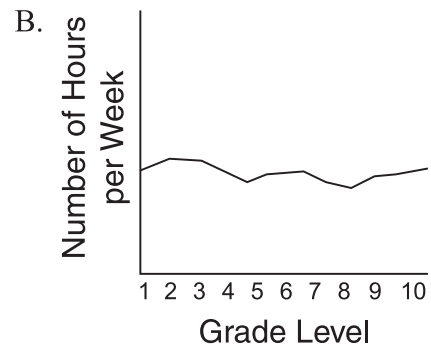
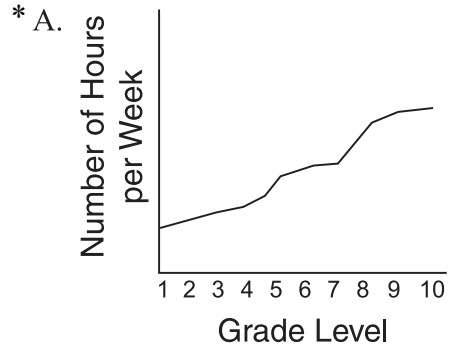
24. On a winter day in Chicago, the temperature was 35 degrees F at noon. By midnight, it had fallen 42 degrees. What was the temperature at midnight?

- A.  $-17^{\circ}\text{F}$
- B.  $-12^{\circ}\text{F}$
- \* C.  $-7^{\circ}\text{F}$
- D.  $-2^{\circ}\text{F}$

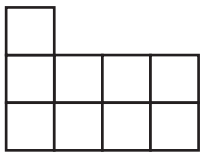
25. Which cardboard box can hold the **greatest** number of 1 in.  $\times$  2 in.  $\times$  4 in. sponges?



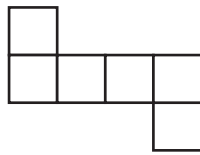
26. Barney took a survey and found that the number of hours a student spent on homework increased with each grade level. Which of the following graphs illustrates that trend?



27. The figures below show the top view and front view of a solid figure built with cubes.

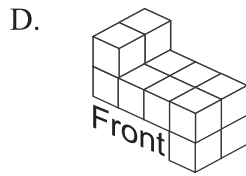
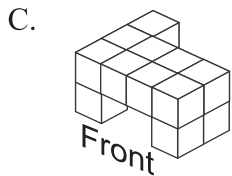
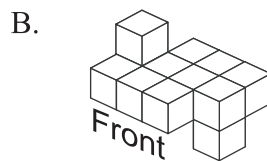
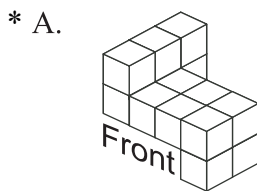


Top View



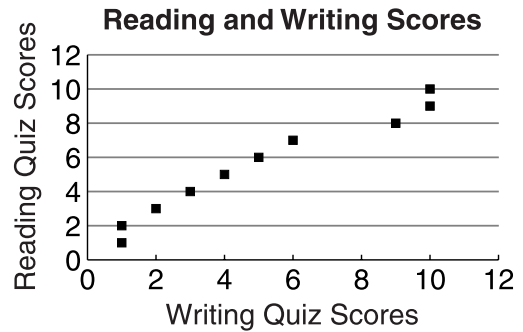
Front View

Which figure shows a 3-dimensional view of the solid figure represented above?



28. A student wants to sample public opinion on how his community feels about public schools. He conducts 15-minute interviews on the telephone. He finds that about 5% of the people he calls are willing to be interviewed. Will this survey produce a sample that is representative of the student's community?
- A. Yes, the sample will be representative if he calls enough people.
  - \* B. No, the low response rate will result in over-sampling those with strong opinions.
  - C. No, the sample will not be representative because the interview time was too short.
  - D. Yes, the sample will be representative as long as the names are randomly selected from a residential phone book.

29. Ms. Waddell teaches first grade. She gave reading and writing quizzes to a group of 10 students. The scores on both quizzes ran from 1 to 10. Ms. Waddell summarized the scores in the scatterplot below.



Which of the following conclusions can she draw from the data?

- A. Not a single student scored well on both quizzes.
  - B. Not a single student scored poorly on both quizzes.
  - C. There is no relationship between the reading and writing scores.
  - \* D. Students who scored well on writing also scored well on reading.
30. Harold wants to use a circle graph to represent his monthly budget. The sector of the circle that represents rent has a central angle measuring 60 degrees. To the nearest percent, what part of Harold's budget goes to pay for rent?
- A. 6 percent
  - \* B. 17 percent
  - C. 33 percent
  - D. 60 percent

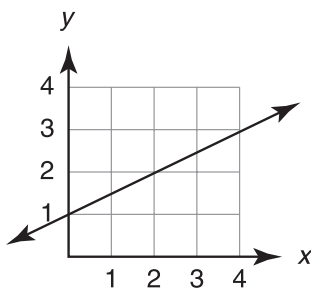


31. Arlo buys a large tub (2.4 liters) of peanut butter for a party, as shown below.



How many milliliters of peanut butter are in the tub?

- A. 24
  - B. 240
  - \* C. 2,400
  - D. 24,000
32. Based on the graph below, what will be the value of  $y$  when  $x = 6$ ?



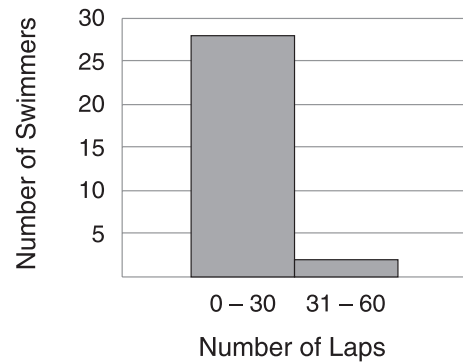
- \* A. 4
- B. 5
- C. 6
- D. 7

33. Which of the following is another way to express  $4^3$ ?

- \* A.  $2^6$
- B.  $2^7$
- C.  $3^4$
- D.  $3^3 \times 2$

34. Mr. Crandall teaches a swim class of 30 students. On the first day, he asks them to swim as many laps as they can. He summarizes the results in the histogram below.

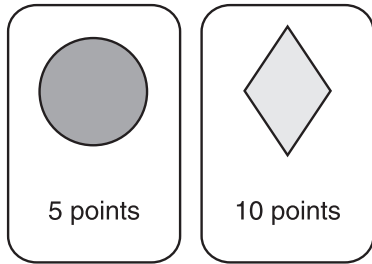
**Laps Completed on Day 1**



Which of the following changes would result in a more informative graph?

- A. Use a line graph instead.
- B. Expand the  $y$ -axis beyond 30.
- C. Add a third interval beyond 60.
- \* D. Use smaller score intervals on the  $x$ -axis.

35. In a board game, cards with a circle are worth 5 points, and cards with a diamond are worth 10 points.

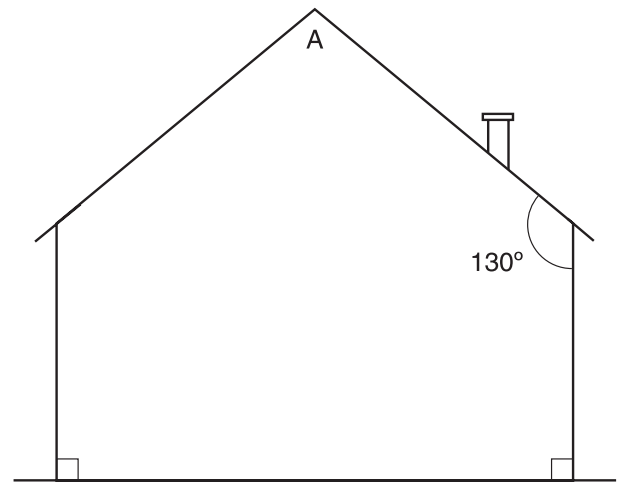


Which equation represents the total points of a set of cards if  $c$  = the number of circle cards, and  $d$  = the number of diamond cards?

- A.  $10c + 5d = \text{total points}$   
 \* B.  $5c + 10d = \text{total points}$   
 C.  $(5 + 10)(c + d) = \text{total points}$   
 D.  $\left[\frac{(5+10)}{2}\right](c + d) = \text{total points}$
36. A recipe for 4 servings of a dessert calls for  $1\frac{1}{2}$  cups of milk. Court wants to make enough for exactly 6 servings. How much milk should he use?

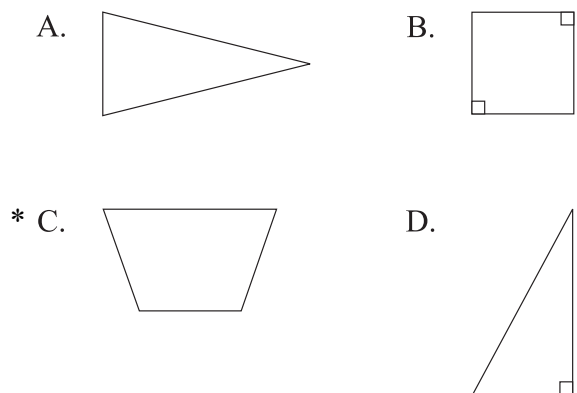
- \* A.  $2\frac{1}{4}$  cups  
 B.  $2\frac{1}{2}$  cups  
 C.  $2\frac{3}{4}$  cups  
 D. 3 cups

37. A student examines the sketch of a house shown below.



Which of the following is the **best** estimate of angle A? Use your protractor to help you.

- A.  $90^\circ$   
 \* B.  $100^\circ$   
 C.  $120^\circ$   
 D.  $130^\circ$
38. Which of the following drawings represents a figure that has only one pair of parallel sides?



39. A family ordered 2 pizzas for dinner: 1 with mushrooms and 1 with cheese. Each pizza was cut into 8 slices. When they were finished, they had eaten 5 slices of the mushroom pizza and 7 slices of the cheese pizza. They took home the remaining slices. What fraction of **the total number of slices** did they take home?

- A.  $\frac{1}{8}$
- \* B.  $\frac{1}{4}$
- C.  $\frac{3}{8}$
- D.  $\frac{3}{4}$

40. Kenan's phone service provider charges \$38.00 a month plus \$0.18 per minute for long distance calls. The formula for determining the amount he pays before tax is:

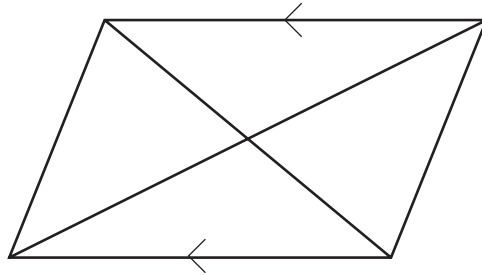
$P = 38 + 0.18(m)$ , where  $P$  is the amount he pays, and  $m$  is the number of long distance minutes.

His April bill equaled \$52.38. How many minutes of long distance did he use during this month? Round your answer to the nearest minute.

- A. 8
- B. 47
- \* C. 80
- D. 91

**MATHEMATICS OPEN-RESPONSE ITEM A**

A. Both diagonals of a quadrilateral have been drawn, as shown below.



1. How many nonoverlapping triangles are formed?
2. For the nonoverlapping triangles within the quadrilateral, find the sum of the measures for all of the angles. Show your work.
3. Find the sum of the measures of the angles formed at the intersection of the diagonals. Explain your answer.
4. Describe how you can use your answers to Parts 1 and 2 to show that the sum of the measures of the angles of a quadrilateral is 360 degrees.





BE SURE TO LABEL YOUR RESPONSES 1, 2, 3, AND 4.

**RUBRIC FOR MATHEMATICS OPEN-RESPONSE ITEM A**

<b>SCORE</b>	<b>DESCRIPTION</b>
<b>4</b>	The student earns 4 points. Correct label of “Degrees” or “°” is included in the response. The response contains no incorrect work.
<b>3</b>	The student earns 3–3 ½ points.
<b>2</b>	The student earns 2–2 ½ points.
<b>1</b>	The student earns ½–1 ½ points or some minimal understanding is shown: Ex. 2 or 8 triangles in Part 1 with no contradictory work and no other credit.
<b>0</b>	The student earns 0 points. No understanding is shown.
<b>B</b>	Blank – No Response. A score of “B” will be reported as “NA.” (No attempt to answer the item. Score of “0” assigned for the item.)

**MATHEMATICS OPEN-RESPONSE ITEM B**

**B.** Look at the table below.

Term Number	Shape Sequence
1	
2	
3	
4	
5	
6	

- In your answer document, complete the table by drawing shapes for the 5th and 6th terms of the sequence.
- List the number sequence that indicates how many squares are in each term for the first 6 terms.
- Write an equation to describe the number sequence. Use  $t$  for the term and  $n$  for the term number.
- Use the table to predict the 15th term in the number sequence.

BE SURE TO LABEL YOUR RESPONSES 1, 2, 3, AND 4.

**RUBRIC FOR MATHEMATICS OPEN-RESPONSE ITEM B**

SCORE	DESCRIPTION
<b>4</b>	The student earns 4 points. The response contains no incorrect work.
<b>3</b>	The student earns 3–3 ½ points.
<b>2</b>	The student earns 2–2 ½ points.
<b>1</b>	The student earns ½–1 ½ points or some minimal understanding is shown: Ex. Diagrams show some understanding, or “Each time add 3” only.
<b>0</b>	The student earns 0 points. No understanding is shown.
<b>B</b>	Blank – No Response. A score of “B” will be reported as “NA.” (No attempt to answer the item. Score of “0” assigned for the item.)

**PART II Released Mathematics Items – 2006 Benchmark Grade 7**

**MATHEMATICS OPEN-RESPONSE ITEM C**

- C. Laura saw a sign in a store window announcing a sale: “Buy one sweater at the regular price and get a second sweater of equal or lesser value at half price.” Laura bought two sweaters. The regular prices of the sweaters were \$26.99 and \$28.99.
1. How much did Laura pay for the two sweaters during the sale? Show your work.
  2. What percent of the total regular price for both sweaters was her discount (the amount of money she saved due to the sale)? Show your work and round your answer to the nearest whole percent.
  3. Suppose the conditions of the sale change. All sweaters are now 30% off the regular price. How much would Laura pay for the two sweaters? Show your work. Round your answers to the nearest cent.
  4. Which type of sale would give Laura the **lowest** price on the two sweaters?

BE SURE TO LABEL YOUR RESPONSES 1, 2, 3, AND 4.

**RUBRIC FOR MATHEMATICS OPEN-RESPONSE ITEM C**

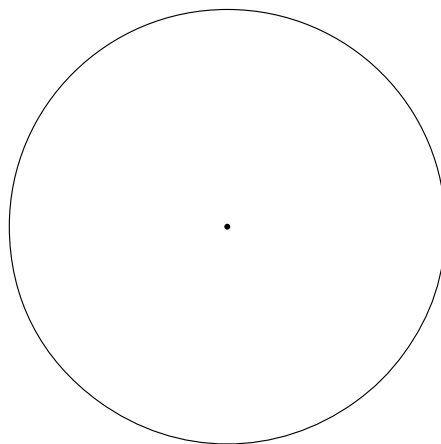
<b>SCORE</b>	<b>DESCRIPTION</b>
<b>4</b>	The student earns 4 points. “\$” is indicated in the response. The response contains no incorrect work.
<b>3</b>	The student earns 3–3 ½ points.
<b>2</b>	The student earns 2–2 ½ points.
<b>1</b>	The student earns ½–1 ½ points or some minimal understanding is shown: Ex. Finds correct discount in Part 1 and/or Part 3 <ul style="list-style-type: none"><li>• <math>26.99 \times \frac{1}{2} = 13.50</math> with no other credit</li><li>• <math>28.99 \times .3 = 8.70</math> with no other credit</li></ul>
<b>0</b>	The student earns 0 points. No understanding is shown.
<b>B</b>	Blank – No Response. A score of “B” will be reported as “NA.” (No attempt to answer the item. Score of “0” assigned for the item.)

**MATHEMATICS OPEN-RESPONSE ITEM D**

- D. Students at Valley View Jr. High were polled to determine their favorite pizza topping. The results are listed below.

<b>Pizza Topping</b>	<b>Percentage of Students</b>
sausage	20
Canadian bacon	5
pepperoni	35
olives	25
cheese	15

1. Draw the circle graph below, including its center point, into your answer document.



2. Illustrate the data on your circle graph using a protractor. Label the circle graph with toppings and percentages.
3. Which two pizza toppings make up exactly one-half of the circle graph? Explain your answer.
4. Explain why the total sum of the percentages should always equal 100 percent.

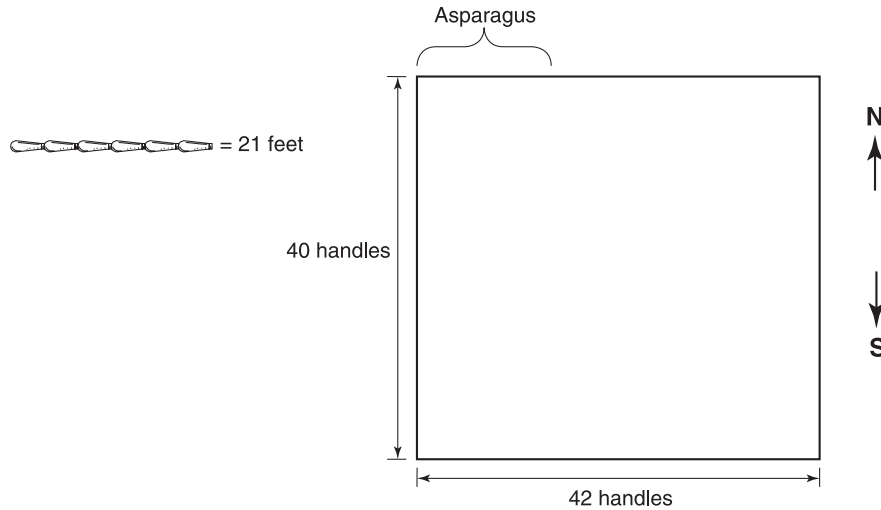
BE SURE TO LABEL YOUR RESPONSES 1, 2, 3, AND 4.

**RUBRIC FOR MATHEMATICS OPEN-RESPONSE ITEM D**

<b>SCORE</b>	<b>DESCRIPTION</b>
<b>4</b>	The student earns 4 points. The response contains no incorrect work.
<b>3</b>	The student earns 3–3 ½ points.
<b>2</b>	The student earns 2–2 ½ points.
<b>1</b>	The student earns ½–1 ½ points or some minimal understanding is shown: Ex. 1–2 angle measure within tolerance, correctly labeled.
<b>0</b>	The student earns 0 points. No understanding is shown.
<b>B</b>	Blank – No Response. A score of “B” will be reported as “NA.” (No attempt to answer the item. Score of “0” assigned for the item.)

MATHEMATICS OPEN-RESPONSE ITEM E

- E. Eli is tilling some ground for a garden plot. The garden will measure 42 spade handles in length and 40 spade handles in width. Six spade handles measure 21 feet in length.



1. How long is one spade handle, in feet? Show your work.
2. What is the width of the garden, in feet? Show your work.
3. Asparagus will border about  $\frac{1}{3}$  of the garden length on the north side, as shown in the figure above. What is the length, in feet, of the part of the north side that will have the asparagus border? Show your work.
4. Eli bought 200 yards of wire to erect a single-wire fence around his garden. Will he have enough wire? Calculate to the nearest foot. Show your work.

BE SURE TO LABEL YOUR RESPONSES 1, 2, 3, AND 4.

RUBRIC FOR MATHEMATICS OPEN-RESPONSE ITEM E

SCORE	DESCRIPTION
4	The student earns 5 points. No incorrect units are included. The response contains no incorrect work.
3	The student earns 3 ½–4 ½ points.
2	The student earns 2–3 points.
1	The student earns ½–1 ½ points or some minimal understanding is shown.
0	The student earns 0 points. No understanding is shown.
B	Blank – No Response. A score of “B” will be reported as “NA.” (No attempt to answer the item. Score of “0” assigned for the item.)