



GRADE

7

KENTUCKY

K-PREP

Kentucky Performance Rating For Educational Progress



MATH SAMPLE ITEMS

Spring 2012



1

Each of four groups in Ms. Myer’s class conducted the same experiment with an 8-sided polyhedron. Each side of the polyhedron is labeled with one number from 1 through 8. Each group rolled the polyhedron 100 times. The results are shown in the table.



Results

| Group | Number on Polyhedron | | | | | | | |
|-------|----------------------|----|----|----|----|----|----|----|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| F | 13 | 7 | 15 | 16 | 14 | 12 | 9 | 14 |
| G | 7 | 17 | 16 | 18 | 8 | 13 | 8 | 13 |
| H | 12 | 14 | 10 | 11 | 10 | 16 | 18 | 9 |
| J | 16 | 11 | 8 | 15 | 12 | 10 | 11 | 17 |

Which group is closest to the theoretical probability that the number 4 lands face up?

- A F
- B G
- C H
- D J



2

Bridget has a coupon for 30% off the regular price of one item at a bicycle store. She buys a bicycle that has a regular price of \$139.99. The tax rate is 6%. What is the price of the bicycle after the coupon is used and tax is applied?

- A \$103.87
- B \$106.39
- C \$137.05
- D \$139.75

3

Richard is playing a video game that helps him learn multiplication facts. The table shows data about points he earned on the first two levels of the game.

Video Game Scores

| Level | Points per Correct Answer | Bonus for Completion of Level | Total Score for Level |
|-------|---------------------------|-------------------------------|-----------------------|
| 1 | 20 | 50 | 390 |
| 2 | 25 | 100 | 450 |

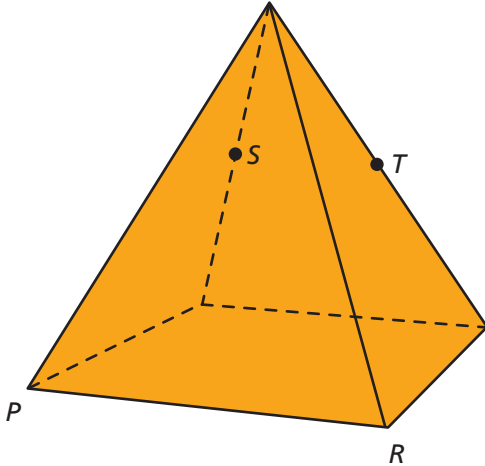
How many questions total did Richard answer correctly for both levels?

- A 15
- B 22
- C 31
- D 44



4

The right square pyramid below shows vertices P and R of the base. Points S and T are the midpoints of the two edges that do not have P and R as endpoints.

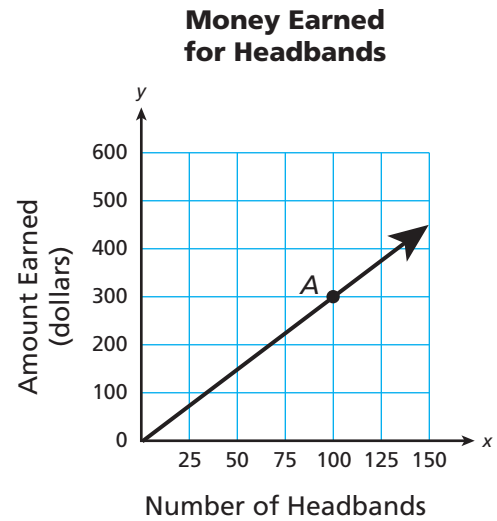


Which figure is created by the intersection of the pyramid and a plane that includes points P , R , S , and T ?

- A Square
- B Trapezoid
- C Rectangle
- D Rhombus

5

Sarah sold flowered headbands at a festival to earn extra money. The graph below represents her earnings.



Which information does point A represent?

- A Sarah earned \$0.25 for each headband she sold.
- B Sarah earned \$1.00 for each headband she sold.
- C Sarah earned \$100 by selling 300 headbands.
- D Sarah earned \$300 by selling 100 headbands.



6

A school cafeteria makes 4 different salads during the week but serves only 2 each day on a rotating basis. The 4 salads are listed below.

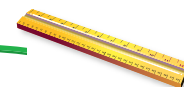
- Chicken (C)
- Fruit (F)
- Pasta (P)
- Tuna (T)

Part A Use the letters C, F, P, and T to list all outcomes of 2 salads.

Part B A student randomly chooses a day to buy a cafeteria salad without knowing which 2 salads are being served. What is the probability the student chooses a day the cafeteria is serving chicken salad, pasta salad, or both? Show your work or explain your thinking.



| RUBRIC | |
|---|--|
| Score Point 2 | <ul style="list-style-type: none"> You complete all components of the question and communicate ideas clearly. You demonstrate an understanding of the concepts and/or processes. You provide a correct answer using an accurate explanation as support. |
| Score Point 1 | <ul style="list-style-type: none"> You provide a partially correct answer to the question and/or address only a portion of the question. You demonstrate a partial understanding of the concepts and/or processes. |
| Score Point 0 | <ul style="list-style-type: none"> Your answer is totally incorrect or irrelevant. |
| Blank | <ul style="list-style-type: none"> You did not give any answer at all. |
| Note: No part can be incomplete or incorrect and receive full credit. | |
| Correct Answer | |
| Part A | |
| CF, CP, CT, FP, FT, PT | |
| Part B | |
| The cafeteria serves chicken salad, pasta salad or both for 5 of the 6 possible combinations so the probability would be $\frac{5}{6}$ or about 0.83 or 83% . | |



7

Using your ruler, draw $\triangle XYZ$ so that it has the side lengths listed below. The measure of $\angle X = 45^\circ$. Be sure to label your triangle.

- $\overline{XY} = 2$ inches
- $\overline{YZ} = 2\frac{1}{2}$ inches
- $\overline{ZX} = 3\frac{1}{2}$ inches

Using your protractor, determine the angle measures of $\angle Y$ and $\angle Z$. Be sure to label the angle measures.

| RUBRIC | |
|--|--|
| Score Point 2 | <ul style="list-style-type: none"> • You complete all components of the question and communicate ideas clearly. • You demonstrate an understanding of the concepts and/or processes. • You provide a correct answer using an accurate explanation as support. |
| Score Point 1 | <ul style="list-style-type: none"> • You provide a partially correct answer to the question and/or address only a portion of the question. • You demonstrate a partial understanding of the concepts and/or processes. |
| Score Point 0 | <ul style="list-style-type: none"> • Your answer is totally incorrect or irrelevant. |
| Blank | <ul style="list-style-type: none"> • You did not give any answer at all. |
| <p>Note: No part can be incomplete or incorrect and receive full credit.</p> | |
| <p>Correct Answer</p> <p>Part A Student draws $\triangle XYZ$ with side lengths 2 inches, $2\frac{1}{2}$ inches, and $3\frac{1}{2}$ inches, accordingly.</p> <p>Part B The measures of the two angles should be close to $\angle Y = 100^\circ$ and $\angle Z = 35^\circ$.</p> | |

Note on student response images:

Due to file editing and formatting, image reproduction may not be true to scale, and student drawings may have their dilation affected.



8

Part A On your answer document, draw a coordinate plane that uses only Quadrant 1. Label the x -axis and the y -axis on the grid. Plot the points $(3, 2)$ and $(9, 6)$. Then, draw a line through the points so that the line extends to the edges of your coordinate plane.

Part B Write each given point as a ratio and show how the ratios are proportional. Show your work and explain your thinking.

Part C What does your line indicate about the proportionality of the two points in relation to the origin? Explain your thinking.

Part D Write a different point that is proportional to $(9, 6)$. Explain how you determined the point.



Item Information

| Question Number | Key | DOK* | KCAS Primary Standard** |
|-----------------|-----|------|-------------------------|
| 1 | C | 2 | 7.SP.6 |
| 2 | A | 2 | 7.RP.3 |
| 3 | C | 2 | 7.EE.4a |
| 4 | B | 2 | 7.G.3 |
| 5 | D | 2 | 7.RP.2d |
| 6 | NA | 2 | 7.SP.7 |
| 7 | NA | 2 | 7.G.2 |
| 8 | NA | 3 | 7.RP.2a |

*DOK is the abbreviation for Depth of Knowledge. Please note that DOK is associated to the complexity level of an assessment item and is not aligned to the standard. Further information regarding DOK can be accessed on the Kentucky Department of Education website: <http://www.education.ky.gov/kde/instructional+resources/curriculum+documents+and+resources/core+content+for+assessment/core+content+for+assessment+4.1/content+specific+core+content+for+assessment+dok+support+materials.htm>.

**Further information regarding Common Core Standards can be accessed on the Common Core website: <http://www.corestandards.org>.