

Hojas para la Escuela Primaria

Exámen de Matemáticas

Opción Múltiple

El exámen de las matemáticas del PSSA se aplica en los grados 3-8, y 11.

- Mira los términos de matemáticas incluidos aquí – tienes que conocerlos para el PSSA
- Mira los ejemplos y practica – tu maestro tiene las respuestas correctas
- Tienes que saber las fórmulas para el área y perímetro de un cuadrado y rectángulo
- Tienes que saber la relación entre radio y diámetro
- Tienes que saber calcular el medio
- Tienes que saber la diferencia entre “mean,” “median,” y “mode”
- Lee la pregunta varias veces y subraya o marca la información importante
- Trata de solucionar el problema antes de mirar las opciones de respuestas para que no te engañe ninguna opción falsa
- Usa el libro de preguntas y papeles blancos para hacer el trabajo de las matemáticas
 - ❑ trabaja despacio y con cuidado para no cometer errores
 - ❑ no trates de hacer mucho trabajo “en tu mente”
 - ❑ escribe con cuidado y usa columnas
 - ❑ copia con cuidado de la pregunta
 - ❑ mira con cuidado las unidades de medida
 - ❑ dibuja el problema si te ayudará
 - ❑ si no encuentres la respuesta, no te rindas – trata otra vez, y inténtalo de otra manera diferente
 - ❑ si no hay otro modo, trata de usar las respuestas dadas para ver cuál funciona para contestar la pregunta
- Puedes usar una calculadora en algunas de las preguntas, pero no todas
- Cuando se permite el uso de la calculadora, **úsala**, al menos para revisar tus respuestas
- Lee las opciones de respuestas con cuidado
- Cuidado con opciones engañosas – lee la pregunta con cuidado y escoge la correcta operación matemática
- Cuando termines con esta parte, regresa para revisar tu trabajo

Exámen de Matemáticas

Parte Escrita

- Mira los ejemplos incluidos aquí y practica usando el “rubric” o instrucciones
- Mira el ejemplo “Sample Response for Category 5” incluido aquí como modelo de una respuesta excelente
- Esto no es opción múltiple – tú tienes que dar la respuesta
- Hay pocas preguntas de este tipo, pero son gran parte de tu calificación total, así que no pases estas preguntas
- Haz todo lo que puedas, porque puedes recibir puntos parciales aunque tengas errores
- Lee la pregunta con cuidado, marca la información importante, y toma tu tiempo
- Pon atención a ver cuantas respuestas se piden, y antes de empezar, divide el espacio del papel para tener el espacio suficiente para todas las respuestas
- Escribe claramente
- Hay que mostrar todo el trabajo, aún cuando uses una calculadora
- Si usas una calculadora, explica qué hiciste con la calculadora (por ejemplo, “I entered 3 multiplied by 3 and I got the product 9.”)
- Explica cada paso de las matemáticas, y por qué decidiste hacerlo así – asegúrate de que tu explicación sería fácil para otra persona leer
- Trata de usar palabras como estas cuando escribes tu explicación:
 - to get
 - to find
 - to figure out
 - to show
 - because
 - since
 - therefore
- Usa las palabras del quinto grado en tu explicación:
 - en vez de “plus”, escribe **sum**
 - en vez de “times”, escribe **multiplied by**
 - en vez de answer, escribe **product**
 - también, usa **divisor, dividend, quotient**
- Es buena idea usar dos columnas para mostrar tu respuesta, así:

WORK

escribes y muestras los cálculos,
los números, y las respuestas
aquí

EXPLICACIÓN

usas palabras para describir todo el trabajo
que hiciste y tus razones por hacer ese
trabajo aquí

Terms used in the Academic Standards for Mathematics through Grade 5³

1. Acute Angle
2. Area
3. Composite Number
4. Congruent
5. Element
6. Equilateral
7. Expanded Notation
8. Factors
9. Hypotenuse
10. Isosceles Triangle
11. Least
12. Leg
13. Maximum
14. Mean
15. Median
16. Minimum
17. Mode
18. Multiples
19. Negative Number
20. Obtuse Angle
21. Parallel
22. Parallelogram
23. Pattern
24. Perimeter
25. Perpendicular
26. Polygon
27. Prime Number
28. Probability
29. Quadrilateral
30. Range
31. Right Angle
32. Right Triangle
33. Scalene Triangle
34. Similar
35. Symmetrical
36. Tessellation
37. Trapezoid
38. Tree Diagram
39. Triangle
40. Venn Diagram
41. Volume

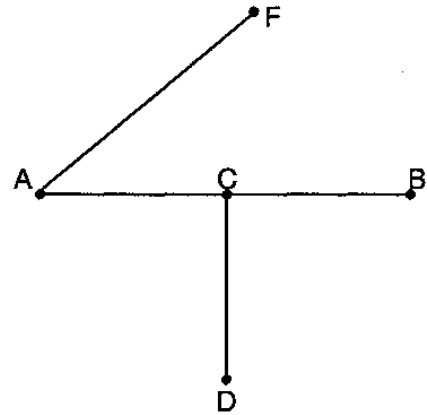
³This list was developed by Elizabeth Aulbach of Central York School District, a member of the Grade 5 Mathematics Assessment Advisory Committee.

You may not use a calculator for items 1–3.

- 450 children each have 16 pieces of candy. Altogether how many pieces of candy do they have?
A. 2812
B. 7200
C. 7250
D. 7400
- A total of 106,789 people attended the Rose Bowl football game. If the average ticket price was \$21.52, **about** how much money did the Rose Bowl take in?
A. \$ 20,000
B. \$ 200,000
C. \$ 2,000,000
D. \$ 20,000,000
- Justin buys 2 cheeseburgers at \$1.55 each, large fries for \$.95, and a vanilla shake for \$1.25. How much change will Justin receive from \$10.00?
A. \$4.50
B. \$4.70
C. \$4.75
D. \$5.00

You may use a calculator for the rest of the questions on this test.

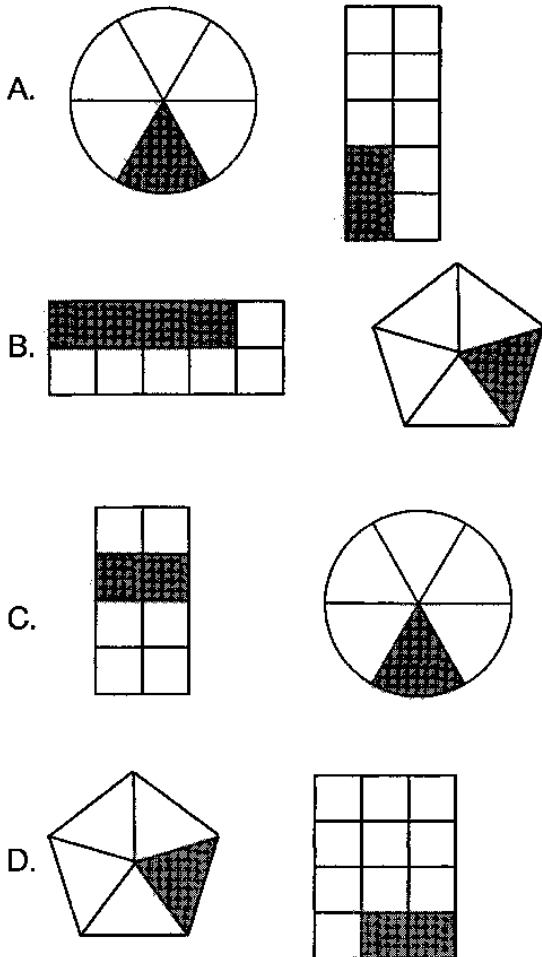
- Use the ruler provided to measure \overline{AB} , \overline{CD} , and \overline{AF} . Then calculate the **sum** of their lengths.



- What number fills the \square to correctly complete this pattern?
3, 1, 4, 2, 5, \square , 6
A. 1
B. 2
C. 3
D. 4

6. When Joseph throws darts, he is able to hit a target one-half of the time. If he throws 36 darts, how many times would he expect to hit the target?
- A. 18 times
 B. 5 times
 C. 8 times
 D. 14 times

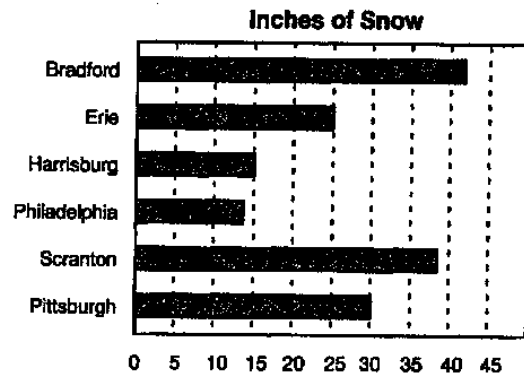
7. Which of the following sets shows $\frac{1}{4}$ and $\frac{1}{6}$ shaded?



8. I am a dogpen with 6 sides and 6 angles. What geometric shape am I?
- A. triangle
 B. pentagon
 C. hexagon
 D. octagon

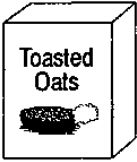



Use the graph below to answer items 9 and 10.

The bar graph shows the number of inches that fell one year in December in each of the cities shown.



9. What city had twice as many inches of snow as Harrisburg?
- A. Erie
 B. Philadelphia
 C. Bradford
 D. Pittsburgh
10. What city had the **least** amount of snow?
- A. Philadelphia
 B. Erie
 C. Harrisburg
 D. Pittsburgh

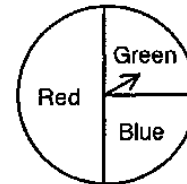
11. Which item is an example of a rectangular prism?

- A.  cereal box
- B.  can
- C.  baseball
- D.  pencil

12. Which of the following numbers has both 2 and 3 as factors?

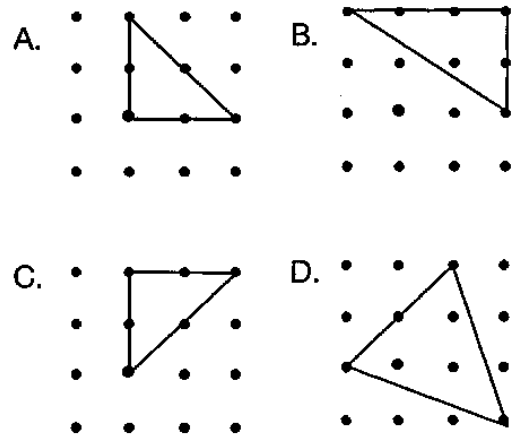
- A. 15
 B. 23
 C. 18
 D. 22

13. The figure below shows a spinner with 3 colored areas. One of the areas is twice as large as the other two. If the spinner is spun 100 times, the best prediction would be that the pointer would stop on red _____ out of 100 times.



- A. 50
 B. 25
 C. 10
 D. 75

14. Which drawing is **not** a right triangle?



15. Mrs. Gonzalez had twins weighing 6 lb 9 oz and 5 lb 13 oz. What was the total weight of both babies?

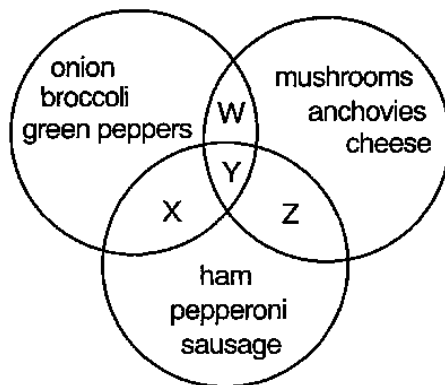
- A. 12 lb 22 oz
 B. 12 lb 10 oz
 C. 12 lb 6 oz
 D. 11 lb 10 oz

16. Which fractions are in order from the **greatest to least**?

- A. $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$
- B. $\frac{1}{2}$, $\frac{4}{4}$, $\frac{3}{6}$
- C. $\frac{1}{3}$, $\frac{1}{2}$, $\frac{1}{6}$
- D. $\frac{2}{3}$, $\frac{3}{4}$, $\frac{2}{5}$

17. Use the figure (Venn diagram) below to decide where a pizza with onions, mushrooms and pepperoni belongs.

PIZZA TOPPING CHOICES



- A. W
- B. X
- C. Y
- D. Z

18. Three children are growing flowers. Maria's flower is 3 inches shorter than Leslie's flower, but Maria's flower is 4 inches taller than Laura's. If Leslie's flower is 10 inches tall, how tall is Laura's?

- A. 3 inches
- B. 14 inches
- C. 7 inches
- D. 13 inches

19. Lenny has \$7.25. Candy bars cost \$.75 apiece. What is the **greatest** number of candy bars he can buy?

- A. 5 candy bars
- B. 8 candy bars
- C. 9 candy bars
- D. 10 candy bars

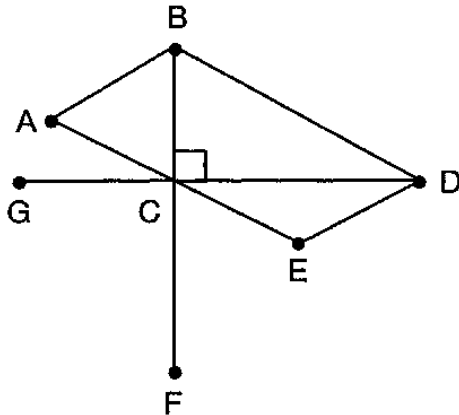
20. Find the perimeter of a rectangular swimming pool having sides of 30 ft and 10 ft.

- A. 300 ft
- B. 80 ft
- C. 150 ft
- D. 40 ft

21. In which number does the underlined 5 represent 5 million?

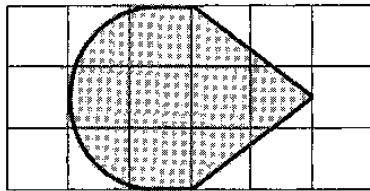
- A. 355,057,531
- B. 355,057,531
- C. 355,057,531
- D. 355,057,531

22. Which line segment is the hypotenuse of a right triangle?



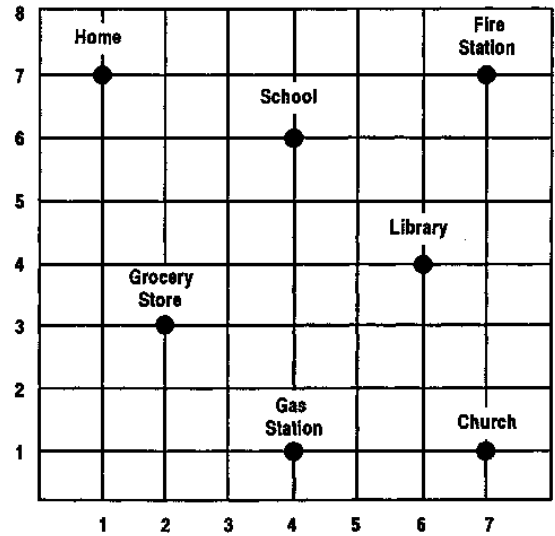
- A. \overline{CD}
- B. \overline{BC}
- C. \overline{CE}
- D. \overline{BD}

23. Each block on the grid equals 1 square unit. **Estimate** the **area** of the shaded figure.



- A. 5 square units
- B. 8 square units
- C. 11 square units
- D. 13 square units

24. Which two places are found at coordinates (4,6) and (7,1)?



- A. school and home
- B. school and church
- C. library and fire station
- D. library and church

25. A baseball helmet weighs more than a bicycle helmet. A race-car driver's helmet weighs more than a baseball helmet. The weight of a football helmet is between the weight of a bicycle helmet and the weight of a race-car driver's helmet. Which helmet weighs the **most**?

- A. the baseball helmet
- B. the bicycle helmet
- C. the football helmet
- D. the race-car helmet

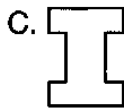
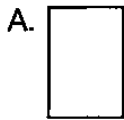
26. The daily high temperatures in the desert for the first three days of the week were 105° , 100° and 95° . What must the fourth day's high temperature be for the average high temperature to be exactly 100° ?

- A. 105°
- B. 100°
- C. 95°
- D. 110°

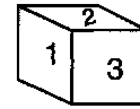
27. What is the **most** reasonable unit to use to measure the height of an oak tree?

- A. millimeters
- B. centimeters
- C. meters
- D. kilometers

28. Which of the following figures has exactly one line of symmetry?



29. The cube shown below is numbered from 1 to 6. What is the probability of rolling an odd number with this cube?



A. $\frac{1}{6}$

B. $\frac{3}{6}$

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

D. 0

30. Art climbed eight feet up a tree. Jay climbed 94 inches up the tree. How much **farther** did Art climb?

- A. 2 inches
- B. 22 inches
- C. 12 inches
- D. 6 inches

31. Joe has a **total** of \$14. He earned \$3 of it washing dishes. The rest he earned mowing lawns. Which equation should he use to find how much money he earned mowing lawns?

- A. $14 + 3 = 17$
- B. $3x = 14$
- C. $17 - x = 3$
- D. $x + 3 = 14$

32. Daniel drove 480 km in 4 hours. If Daniel continues driving at the same speed, how long will it take him to drive an additional 720 km?
- A. 18 hours
 - B. 12 hours
 - C. 6 hours
 - D. 3 hours
-

Figure 3
Mathematics General Problem Solving Rubric

5 - Advanced Understanding, Excellent

- Correct answer with correct procedures/correct calculations shown or described and a written explanation that supports the work shown. The explanation tells what was done in the solution process and explains **why** the steps were done (or the reason(s) for the steps to be taken). No blemishes, that is, everything is correct. May have a minor omission in calculation or explanation where the omitted step or explanation may be of the level of $2 + 2 = 4$ (something that is usually done mentally and considered trivial and understood).

4 - Satisfactory Understanding

- Correct answer with correct procedures/correct calculations shown or described and a written explanation which supports some of the work shown. May have minor omission in calculation or explanation (such as $2 + 2 = 4$).

3 - Almost Satisfactory Understanding

- Correct answer with most correct procedures/calculations shown or described and no explanation. Some steps are missing, but you can follow what is being done.
- Correct answer with few correct procedures/calculations shown or described and some explanation. Some steps are missing, but you can follow what is being done.
- Incorrect answer with correct procedures shown or described and some explanation, but with one calculation or copying error carried through.

2 - Partial Understanding

- Correct answer with few procedures/calculations shown or described or some explanation. Too many steps are missing to follow what is being done.
- Incorrect answer with half or more correct procedures shown or described and some or no explanation. The student either did not proceed far enough or proceeded incorrectly.
- Incorrect answer with correct procedures shown or described and no explanation. May have no more than 2 calculation or copying errors.

1 - Minimal Understanding

- Correct answer with calculations, procedures or explanation that are either not legible or not understandable or missing or the procedure is incorrect. Less than a "2" score.
- No answer or an incorrect answer, but the student has provided some of the information critical to the solution. There is some indication that the student has read the item.

0 - Incorrect

- Incorrect answer in which the student attempts the task incorrectly or gives an incorrect or incomplete answer with an incorrect explanation or no explanation of the procedure or logic used in the solution. Nothing is correct.
 - Blank responses and Off-Task responses (profanity, refusal to perform, unrelated drawings or comments such as "doodles") are scored as "Incorrect responses."
 - Question marks and "I don't know" are scored as "Incorrect responses." The student has read the task and responded to it.
 - No answer is treated as an incorrect answer.
-

33. Some fifth graders competed in a field-day race. The fifth-grade results for the 50-meter race are shown in the chart below.

Runner	Time in Seconds
Andrew	8.05
Tia	7.68
José	8.98
Rose	7.86
Matt	8.28
Donna	8.72

- A) List the runners from **fastest to slowest**. **REMEMBER:** the runner completing the race in the **least amount of time** is the **winner**.

GO TO THE NEXT PAGE TO FINISH QUESTION 33.



33. **Continued.** Please refer to previous page for task explanation.

B) CALCULATE the **average time** for the fifth grade. **Which runner's time was closest to the average for fifth grade?** CALCULATE by how much time this student's time **differed from the average.**

WRITE each step of your math work.
EXPLAIN why you did each step.
WRITE your answers in the **box** below.

Answers:

_____ Average time

_____ Runner whose time was
closest to the average.

_____ Amount by which this
runner's time differed
from the average.

GO ON 

Grade 5 Sample Response for Category 5

A) LIST all the possible combinations which could occur when the 2 spinners are spun. There are **16 possible** combinations. The first one has been completed for you on the chart below.

COMPLETE the chart to find the remaining combinations and their products.

Spinner 1	4	1	2	3	2	4	3	1	2	1	3	1	3	4	2	4
Spinner 2	1	4	2	2	3	3	4	1	1	2	3	3	1	2	4	4
Product	4	4	4	6	6	12	12	1	2	2	9	3	3	8	8	16
		5	5	4	5	5	7	7	2	3	3	6	4	4	6	8

B) LOOK at all the combinations in the chart above.

Who has the better chance of winning the game?

REMEMBER: Lorrie gets a point for each odd product.

Jim gets a point for each even product.

EXPLAIN your answer.

WRITE your answer in the box below.

Jim has a a better chance of winning the game because out of the 16 combinations 12 were even and 4 were odd.

Answer:

Jim

Response continued on the following page.

Grade 5 Sample Response for Category 5 (continued)

C) SUPPOSE Lorrie and Jim play the game again with new rules.

- The 2 numbers which are spun are added, not multiplied.
- If the sum of the 2 numbers is odd, Lorrie gets a point.
- If the sum of the 2 numbers is even, Jim gets a point.

Who has the better chance of winning the new game? (Make sure you use your chart from Part A to help answer the question.)

SHOW any math work you did to arrive at your answer.
EXPLAIN your answer.
WRITE your answer in the box below.

4	1	2	3	2	4	3	1
+1	+4	+2	+2	+3	+3	+4	+1
<hr/>							
5	5	4	5	5	7	7	2
2	1	3	1	3	4	2	4
+1	+2	+3	+3	+1	+2	+4	+4
<hr/>							
3	3	6	4	4	6	6	8

They both have an even chance because the sums added up 8 for odd and 8 for even

Answer:

Lorrie and Jim

5 - All nine possible points are earned. In part A all 15 combinations and products are correctly listed (3 points). In part B the player with the better chance of winning is chosen and the choice is justified with an accurate discussion of probability. A comparison is made between the number of possible odd and even products out of the total of 16 combinations (3 points). In part C a tie is indicated with a justification that is based on probability concepts (3 points).