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Exploring the English proficiency-Mathematical proficiency relationship in learners: An investigation using instructional English computer software

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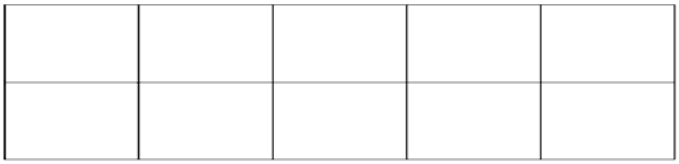
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INSTRUCTION:

1. (N)

In the figure, how many MORE small squares need to be shaded so that $\frac{4}{5}$ of the small squares are shaded?

Ⓐ 5
Ⓑ 4
Ⓒ 3
Ⓓ 2
Ⓔ 1



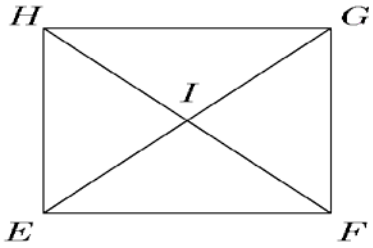
2. The length of a box is 9cm to the nearest centimetre. Which of these could be the actual length of the box?

A. 10 cm B. 9.9 cm C. 9.6 cm D. 8.6 cm (M)

3. (G)

In square $EFGH$, which of these is FALSE?

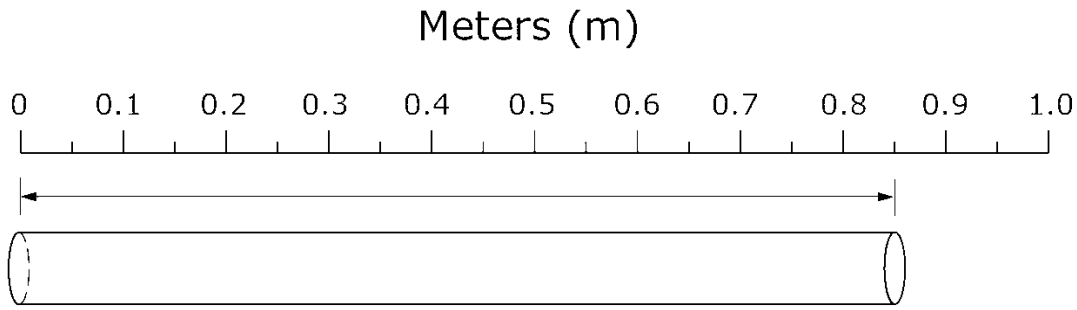
Ⓐ ΔEIF and ΔEIH are congruent.
Ⓑ ΔGHI and ΔGHF are congruent.
Ⓒ ΔEFH and ΔEGH are congruent.
Ⓓ ΔEIF and ΔGIH are congruent.



4. Sipho runs 4 times around a football field in the same time that Lerato runs three times. When Lerato runs 12 times, how many times has Sipho run? (N)

A. 9 B. 11 C. 13 D. 16

5. (M)

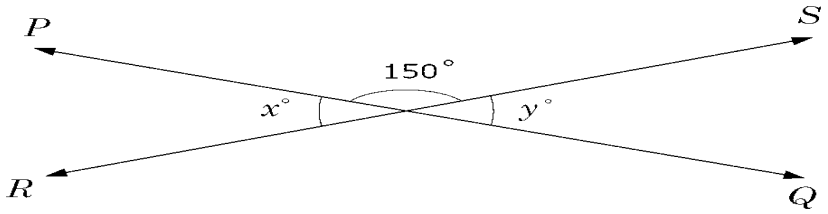


What is the length of the pipe being measured?

A. 0.085 B. 0.805 C. 0.85 D. 8.5

6. (G)

In the figure, PQ and RS are intersecting straight lines.



What is the value of $x + y$?

A. 15 B. 30 C. 60 D. 180 E. 300

7. In a group of children, 16 have birthdays during the first half of the year, and 14 have birthdays during the second half of the year. What fraction of the group have birthdays during the first half of the year? (N)

A. $\frac{14}{30}$ B. $\frac{14}{16}$ C. $\frac{16}{14}$ D. $\frac{16}{30}$ E. $\frac{30}{16}$

8. (A)

If $\frac{12}{n} = \frac{36}{21}$, then n equals

A. 3 B. 7 C. 36 D. 63

9. If $x = -3$, what is the value of $-3x$? (A)

A. -9 B. -6 C. -1 D. 1 E. 9

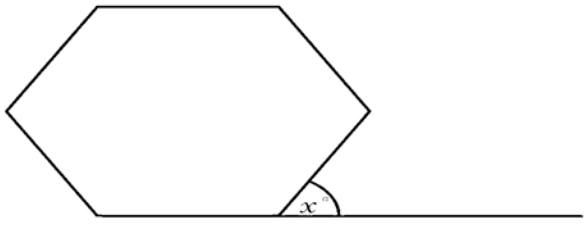
10. At a play, $\frac{3}{25}$ of the people in the audience were children. What percent of the audience was this?

A. 12% B. 3% C. 0.3% D. 0.12% (N)

11. If n is a negative integer, which of these is the largest number? (N)

A. $3 + n$ B. $3 \times n$ C. $3 - n$ D. $3 \div n$

12. (G)



The figure above is a regular hexagon. What is the value of x?

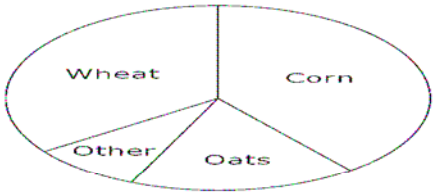
Answer: _____

13. Thande has twice as many books as Zandi. Sipho has six more books than Zandi. If Zandi has x books, which of the following represents the total number of books the three learners have?

A. $3x + 6$ B. $3x + 8$ C. $4x + 6$ D. $5x + 6$ E. $8x + 2$ (A)

14. (D)

The graph shows the distribution of crops grown in a certain country.

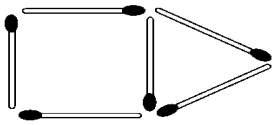


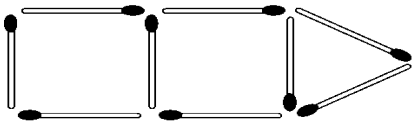
According to the information in the graph, which of these statements is true?

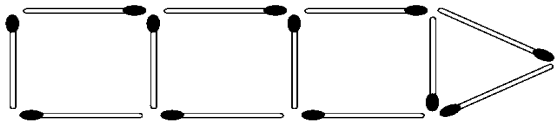
(A) More oats are grown than wheat.
(B) Corn is more than one-half of the country's crop.
(C) Oats are more than one-third of the country's crop.
(D) The total crop of oats and wheat is greater than the corn crop.

15.

Matchsticks are arranged as shown in the figures.


Figure 1


Figure 2


Figure 3

If the pattern is continued, how many matchsticks would be used to make Figure 10?

A. 30 B. 33 C. 36 D. 39 E. 42 (A)

16. Which of these is the LEAST amount of time? (M)

A. 1 day B. 20 hours C. 1800 minutes D. 90,000 seconds

17. Two-thirds of the people present at the beginning of a meeting are men. Nobody leaves but 10 more men and 10 women arrive at the meeting. Which of the following statements is true? (N)

A. There would then be more men than women at the meeting
B. There would then be the same number of men as there are women at the meeting
C. There would then be more women than men at the meeting.
D. From the information given, you cannot tell whether there would be more women or men.

18. About 7000 copies of a magazine are sold each week. Approximately how many magazines are sold each year?

A. 8400 B. 35,000 C. 84,000 D. 350,000 E. 3,500,000 (N)

19. (N)

In which list are the numbers ordered from greatest to least?

(A) 0.233, 0.3, 0.32, 0.332
(B) 0.3, 0.32, 0.332, 0.233
(C) 0.32, 0.233, 0.332, 0.3
(D) 0.332, 0.32, 0.3, 0.233

20. $\frac{3}{5} + \langle \frac{3}{10} \times \frac{4}{15} \rangle =$ (N)

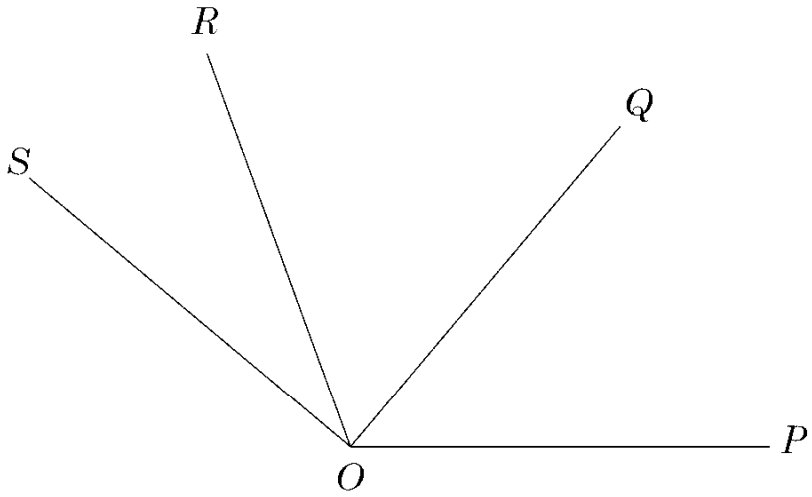
A. $\frac{3}{51}$ B. $\frac{1}{6}$ C. $\frac{6}{25}$ D. $\frac{11}{25}$ E. $\frac{17}{25}$

21. If $L = 4$ when $K = 6$ and $M = 24$, which of the following is true? (A)

A. $L = \frac{M}{K}$ B. $L = \frac{K}{M}$ C. $L = KM$ D. $L = K + M$ E. $L = M - K$

22. (G)

In the figure, the measure of $\angle POR$ is 110°, the measure of $\angle QOS$ is 90°, and the measure of $\angle POS$ is 140°.



What is the measure of angle QOR?

ANSWER: ._____

23. Luandile begins her homework at 6.40. If it takes Luandile three-quarters of an hour to do her homework, at what time will she finish?

ANSWER: _____ (M)

24. If $4(x + 5) = 80$, then x =

Answer: _____ (A)

25. Sam wanted to find three consecutive even numbers that add up 84. He wrote the equation $k + (k + 2) + (k + 4) = 84$. What does the letter k represent? (A)
A. The least of the three even numbers
B. The middle even number
C. The greatest of the three even numbers
D. The average of the three even numbers

26. The numbers in the sequence 7, 11, 15, 19, 23, … increase by four. The numbers in the sequence 1, 10, 19, 28, 37, … increase by nine. The number 19 is in both sequences. If the two sequences are continued, what is the next number that is in BOTH the first and the second sequences?

ANSWER: _____ (A)

27. Write a fraction that is less than $\frac{4}{9}$

ANSWER: _____ (N)

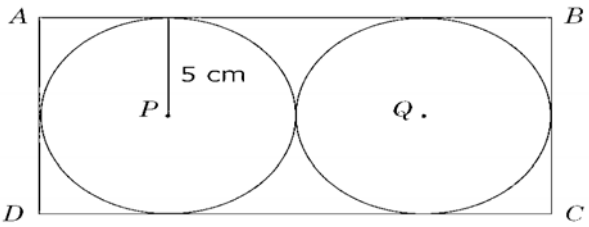
28. A car has a petrol tank that holds 45 litres of petrol. The car consumes 8.5 litres of petrol for each 100 km driven. A journey of 350 km was started with a full tank of petrol. How much remained in the tank at the end of the journey?

ANSWER: _____ (N)

29. John and Cathy were told to divide a number by 100. By mistake, John multiplied the number by 100 and obtained an answer of 450. Cathy correctly divided the number by 100. What was her answer?

ANSWER: _____ (N)

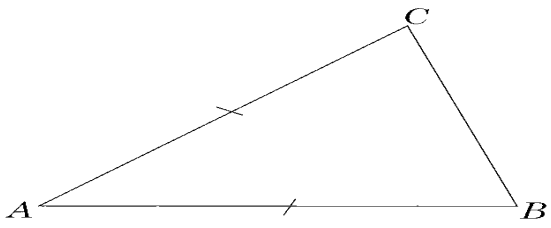
30. (M)



In the figure above, $ABCD$ is a rectangle, and circles P and Q each have a radius of 5 cm. What is the area of the rectangle?

ANSWER: _____

31. (G)



The triangle ABC has $AB = AC$.

Draw a line to divide triangle ABC into two congruent triangles.

32. If a + 2b = 5 and c = 3, what is the value of a + 2(b + c)?

ANSWER: _____ (A)

33. What is the value of *1 – 5 × (-2)?* ANSWER: _____ (N)

34. Which of these is closest to $11^2 + 9^2$? (N)

A. 20 + 20 B. 20 + 80 C. 120 + 20 D. 120 + 80

35. A computer club had 40 members, and 60% of the members were girls. Later, 10 boys joined the club. What percent of the members now are girls? Show the calculations that lead to your answer.

ANSWER: _____ (N)