Practice Quiz 5

Instructions

Please answer **all 60 multiple-choice questions** in this quiz.

When you are finished, click **Submit**. Your results will appear immediately, along with the **correct answers** so you can review your work and learn from any mistakes.

Good luck!

* Indicates required question

FULL NAME *

Your answer

Name of School *

Your answer

1) What percentage of 40 is 8? * 1 point

- A) 5
- B) 20
- C) 32
- D) 150

2) * 1 point

$\left[\frac{2}{3}\right]^{-2}$ is equal to

- A) 4/9
- B) 4/6
- C) 6/4
- D) 9/4

3) *

1 point

$$\sqrt{17^2 - 15^2} =$$

- A) 1
- B) 2
- C) 8
- D) 16

4) The square root of 191 lies between *

1 point

- A) 11 and 13
- B) 12 and 13
- C) 13 and 14
- D) 45 and 46

5) 99 x 101 has the same value as *

1 point

- A) (99 x 100) + 1
- B) (99 x 100) (99 x 1)
- C) (99 x 100) - (99 x 1)
- D) (99 x 100) + (99 x 1)

6) *

1 point

There are 40 students in a class. Girls make up 60% of the class. 25% of the girls wear glasses. How many girls in the class wear glasses?

- A) 6
- B) 8
- C) 10
- D) 15

7) If n(A)= m, then the number of subsets of A can be expressed as * 1 point

2^m

A)

m^2

B)

2^{2m}

C)

$2m^2$

D)

8) * 1 point

Which of the following statements describes the set of integers greater than –3 but less than 6?

$\{x : -3 > x > 6, x \in Z\}$

A)

$\{x : -3 \geq x \geq 6, x \in Z\}$

B)

$\{x : -3 \leq x \leq 6, x \in Z\}$

C)

$\{x : -3 < x < 6, x \in Z\}$

D)

9) *

1 point

Which of the following pairs of sets is an example of disjoint sets?

E = {even numbers} and F = {odd numbers}

A)

P = {multiples of 2} and Q = {multiples of 3}

B)

G = {multiples of five} and H = {factors of 20}

C)

X = {whole numbers} and Y = {rational numbers}

D)

10) *

1 point

Given $A = \{1, 3, 6, 8, 9, 12, 15\}$ and $B = \{6, 9, 12\}$, which of the following statements is true?

$B \subset A$

A)

$A \cap B = \varnothing$

B)

A and B are disjoint sets

C)

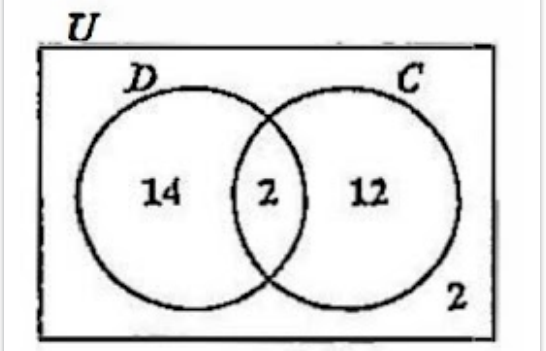
B is the complement of A

D)

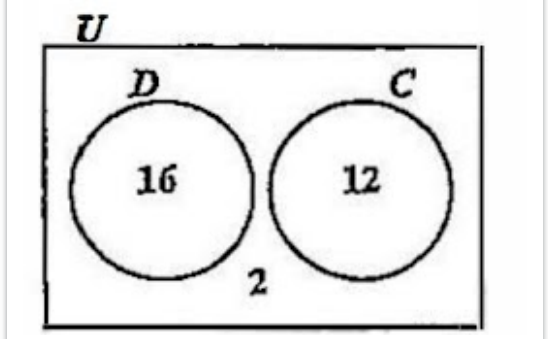
11) *

1 point

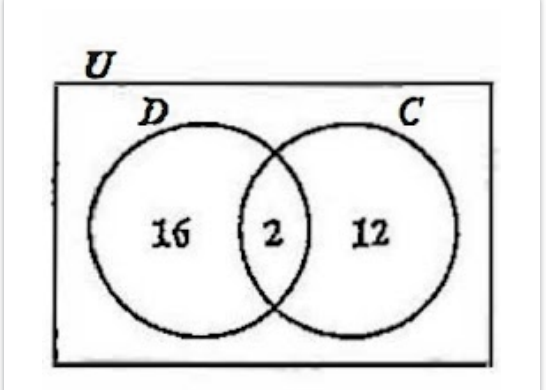
The 30 students in Teacher May's class have either a dog (D) or a cat (C), or none of the two. ALL the students who have a cat also have a dog. If $n(C) = 12$ and $n(D) = 16$, which of the following Venn diagrams below correctly represents this information?



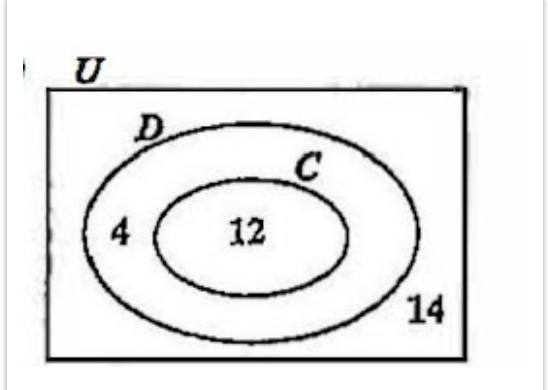
A)



B)



C)

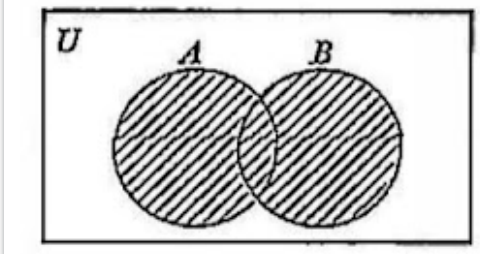


D)

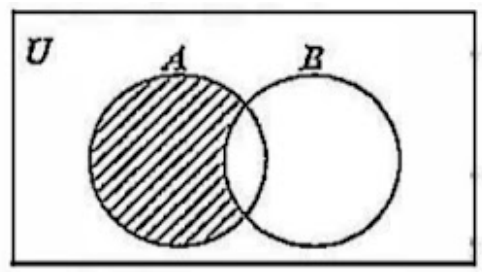
12) *

1 point

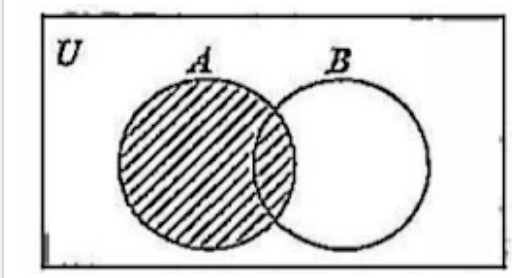
In which of the following Venn diagrams is the region $A \cap B'$ shaded?



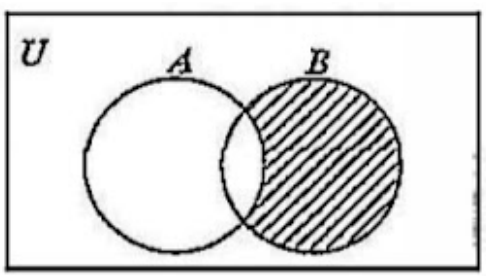
A)



B)



C)



D)

13) *

1 point

If EC $2.50 is equivalent to US $1.00, then EC $20.00 in US dollars is

A) $5.00

B) $8.00

C) $ 50.00

D) $80.00

14) *

1 point

The simple interest on \$600 for t years at 5% per annum is \$120. The value of t is

A) $\$\frac{100 \times 120}{600 \times 5}$

B) $\$\frac{600 \times 5}{100 \times 120}$

C) $\$\frac{100 \times 5 \times 120}{600}$

D) $\$\frac{600 \times 5 \times 120}{100}$

15) *

1 point

Given that y varies directly as x, and $y = 19$ when $x = 152$, which of the following equations represents the relationship between x and y?

A) $y = 8x$

B) $y = \frac{1}{133}x$

C) $y = \frac{1}{8}x$

D) $y = x - 133$

16) *

1 point

A man's annual salary is $45 000. His tax free allowances total $13 000. He has to pay a tax of 20% on his taxable income.

The tax payable is

A) $2600

B) $6400

C) $9000

D) $ 11600

17) * 1 point

A man pays 60 cents for every 200 m^3 of gas used, plus a fixed charge of $13.75. How much does he pay when he uses 55 000 m^3 of gas?

- A) $178.75
- B) $175.25
- C) $165.00
- D) $151.25

18) * 1 point

A car presently valued at $12 000 depreciates at the rate of 10% per annum. What will be the value of the car one year later?

- A) $10800
- B) $11800
- C) $11880
- D) $13200

19) * 1 point

A dinner at a restaurant was advertised at $60 plus 18% tax. The TOTAL bill for this dinner was

- A) $60.00
- B) $70.80
- C) $78.00
- D) $81.60

20) *

1 point

A store offers a discount of 10% to customers who spend more than $20. If a customer's total bill is $80, what will he actually pay?

- A) $60
- B) $70
- C) $72
- D) $74

21) *

1 point

$$\frac{4}{5x} + \frac{2}{5x} =$$

- A) $\frac{6}{5x}$
- B) $\frac{6}{10x}$
- C) $\frac{8}{25x}$
- D) $\frac{6}{25x}$

22) *

1 point

If $m * n = \sqrt{m^3 - n^2}$, then $5 * 2 =$

- A) 2
- B) $\sqrt{11}$
- C) $\sqrt{34}$
- D) 11

23) *

1 point

Given that $3(x-1)-2(x-1)=7$, the value of x is

- A) 6
- B) 7
- C) 8
- D) 9

24) *

1 point

$-(-2q)-3q=$

- A) -6q
- B) -5q
- C) -q
- D) 5q

25) *

1 point

If $x=4$ and $y=2$, then the value of $\frac{x^2+3y}{xy}$ is

A) $1\frac{3}{4}$

B) $2\frac{1}{2}$

C) $2\frac{3}{8}$

D) $2\frac{3}{4}$

26)

1 point

If $\frac{p}{5}=20$, then $p=$

A) 20 - 5

B) 20+5

C) 20/5

D) 20 x 5

27) *

1 point

Item 27 refers to the following vectors, $\mathbf{p}$ and $\mathbf{q}$.

$$\mathbf{p} = \begin{bmatrix} 3 \\ 7 \end{bmatrix} \quad \mathbf{q} = \begin{bmatrix} -2 \\ 5 \end{bmatrix}$$

The vector $\mathbf{p} - \mathbf{q}$ is represented by

A) $\begin{bmatrix} 1 \\ 12 \end{bmatrix}$

B) $\begin{bmatrix} 5 \\ 12 \end{bmatrix}$

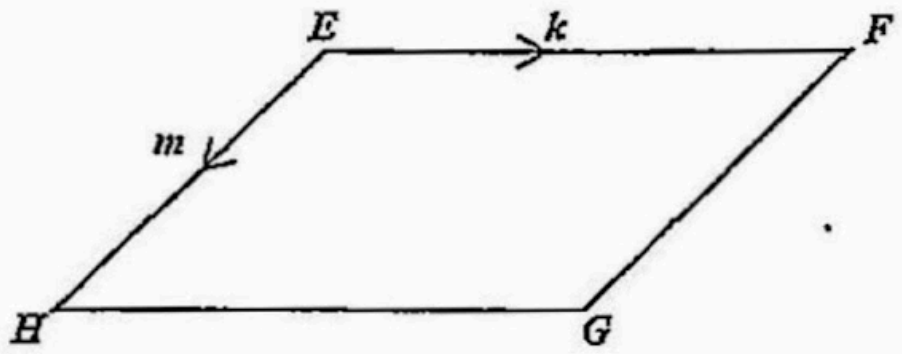
C) $\begin{bmatrix} 5 \\ 2 \end{bmatrix}$

D) $\begin{bmatrix} 1 \\ 5 \end{bmatrix}$

28) *

1 point

Item 28 refers to the following diagram of a parallelogram, in which EF is parallel to HG, EH is parallel to FG, $\overrightarrow{EF} = k$ and $\overrightarrow{EH} = m$.



28. $\overrightarrow{EG}$ expressed in terms of k and m is

- A) k + m
- B) k - m
- C) m - k
- D) -m - k

29) *

1 point

If $5\begin{bmatrix} x \\ y \end{bmatrix} = 4\begin{bmatrix} 10 \\ 20 \end{bmatrix}$, then the values of x and y are

- A) x=4, y=5
- B) x=8, y=16
- C) x=2.5, y=4
- D) x=10, y=20

30) *

1 point

Item 30 refers to the following matrices, A and B.

$$A = \begin{bmatrix} 1 & 3 & -3 \\ 3 & 0 & 5 \end{bmatrix}, \quad B = \begin{bmatrix} 3 & 0 \\ 2 & 1 \\ 0 & 5 \end{bmatrix}$$

The matrix product AB is

A) $\begin{bmatrix} 9 & -12 \\ 9 & 25 \end{bmatrix}$

B) $\begin{bmatrix} -6 & -12 \\ 9 & 25 \end{bmatrix}$

C) $\begin{bmatrix} 9 & -18 \\ 9 & 25 \end{bmatrix}$

D) $\begin{bmatrix} -12 & -6 \\ 25 & 9 \end{bmatrix}$

31) *

1 point

The volume of a cube whose edge is 6 cm long is

A) 18 cm³

B) 36 cm³

C) 72 cm³

D) 216 cm³

32) * 1 point

If it took a speedboat 9 hours to travel a distance of 1 080 km, what was its average speed, in kmh^{-1}?

- A) 12
- B) 102
- C) 120
- D) 1200

33) 2500 millimetres in metres is * 1 point

- A) 0.25
- B) 2.5
- C) 25
- D) 250

34) * 1 point

An aircraft leaves A at 16:00 hours and arrives at B at 19:30 hours, travelling at an average speed of 550 kilometres per hour. A and B are in the same time zone. The distance from A to B, in kilometres, is

- A) 907.5
- B) 962.5
- C) 1 815
- D) 1 925

35) * 1 point

In a rectangular garden plot, 15 m long and 12 m wide, an area of 80 m^2 is used for a vegetable garden. What area of the plot is NOT used for vegetable gardening?

- A) 26 m^2
- B) 100 m^2
- C) 135 m^2
- D) 260 m^2

36) * 1 point

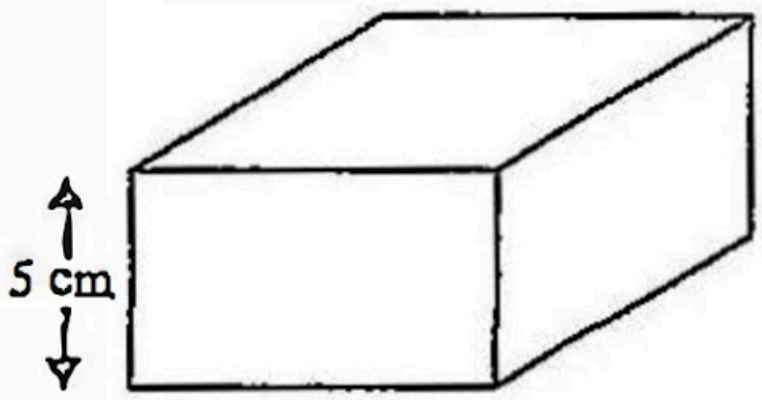
The distance around a lake is 8 km. On a map, this distance around the lake is represented by a length of 2 cm. The scale on the map is

- A) 1 : 40
- B) 1 : 2 000
- C) 1 : 200 000
- D) 1 : 400 000

37) *

1 point

Item 37 refers to the follwoing diagram, not drawn to scale, which shows a cuboid.



The volume of the cuboid is 320 cm^3 and the height is 5 cm. If the cuboid has a square base, what is the length of one side of the base?

- A) 8 cm
- B) 16 cm
- C) 32 cm
- D) 64 cm

38) *

1 point

A square has the same area as a rectangle with sides of length 9 cm and 16 cm. What is the length of the side of the square?

- A) 9 cm
- B) 12 cm
- C) 12.5 cm
- D) 75 cm

39) *

1 point

The median of the numbers

1, 1, 5, 5, 6, 7, 7, 7, 7, 8 is

A) 5.4

B) 6

C) 6.5

D) 7

*

1 point

Item 40 refers to the following frequency table which shows the time taken by 20 students to solve a maths problem.

Time, x (minutes)	Frequency
0–2	5
3–5	9
6–8	2
9–11	4

The lower class boundary of the interval "3–5" is

A) 2.0

B) 2.5

C) 3.0

D) 5.5

41) *

1 point

Item 41 refers to the following table which shows the frequency of scores obtained by students in a test.

Scores	2	3	5	6	8	11
Students	8	4	6	3	12	2

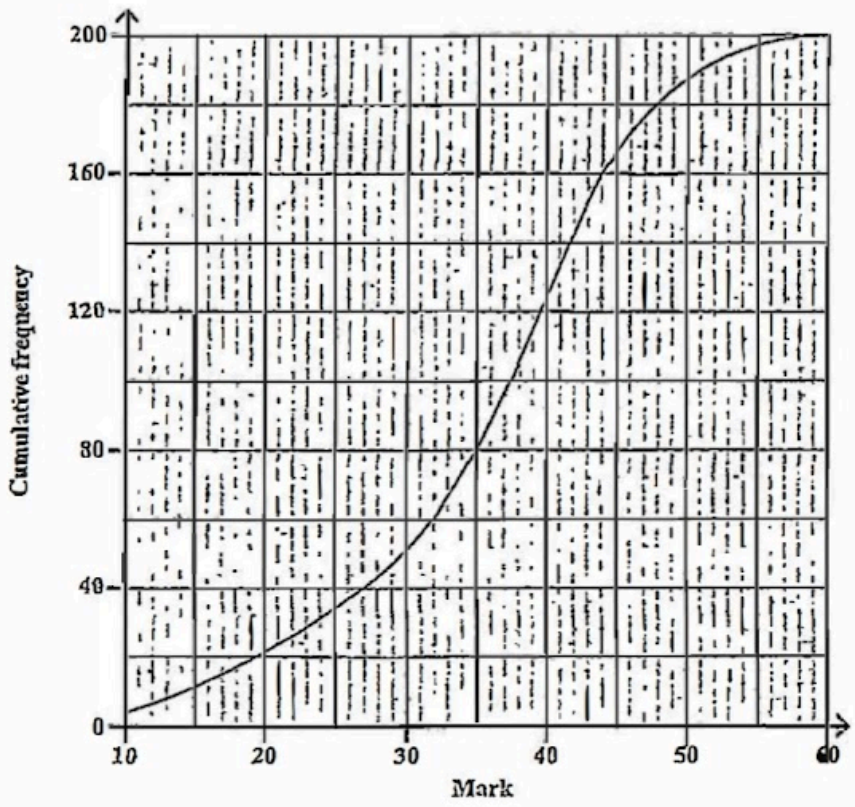
The modal score is

- A) 8
- B) 9
- C) 10
- D) 12

42) *

1 point

Item 42 refers to the following diagram of a cumulative frequency curve which shows the mark obtained by 200 students on a test.



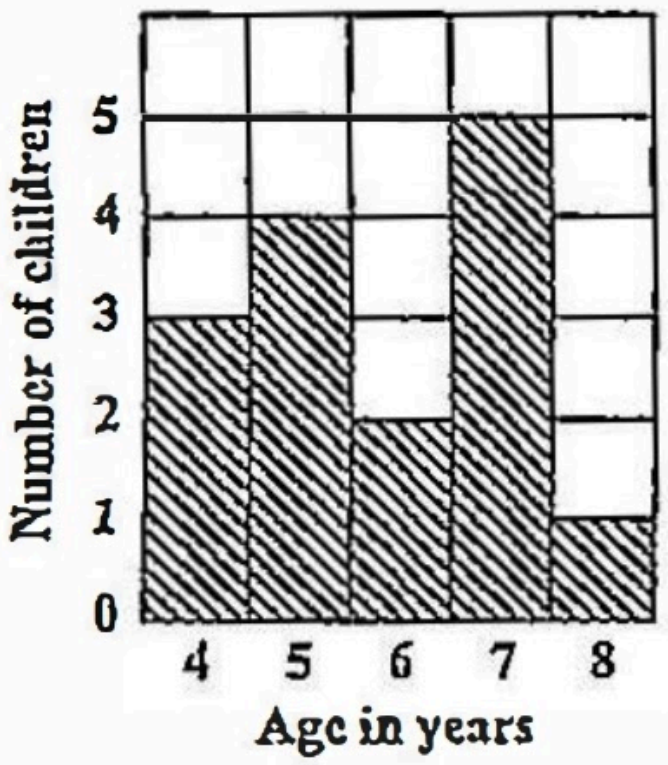
The median of the marks scored by the 200 students is

- A) 30.0
- B) 35.0
- C) 37.5
- D) 100.0

43) *

1 point

Item 43 refers to the following bar chart which shows the ages of children who took part in a survey.



How many children took part in the survey?

- A) 5
- B) 15
- C) 75
- D) 87

44) *

1 point

Six hundred students write an examination. The probability of a randomly selected student failing the examination is $\frac{1}{5}$.

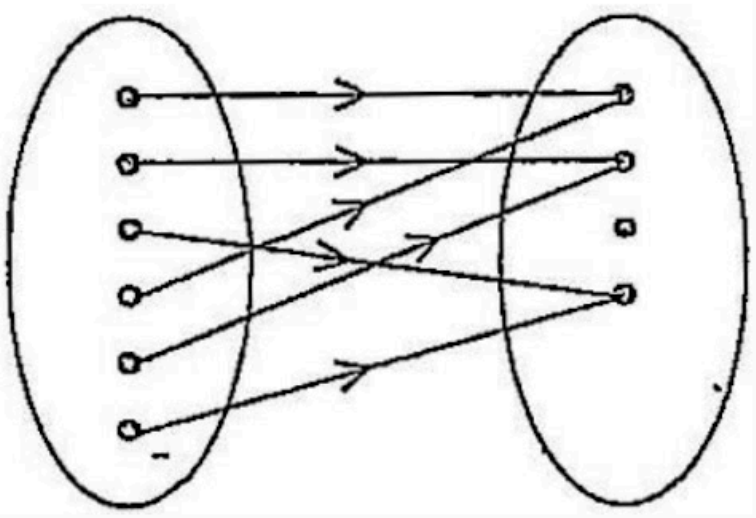
How many students are expected to pass?

- A) 100
- B) 120
- C) 480
- D) 500

45) *

1 point

Item 45 refers to the following mapping diagram.



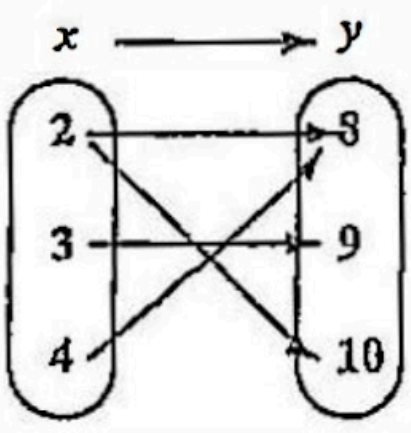
The relationship that BEST describes the mapping in the diagram is

- A) one-to-one
- B) one-to-many
- C) many-to-one
- D) many-to-many

46) *

1 point

Item 46 refers to the following arrow diagram.



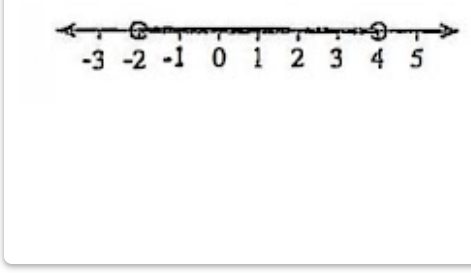
The arrow diagram above BEST describes the relation

- A) y is less than x
- B) y is a factor of x
- C) x is a multiple of y
- D) x is a factor of y

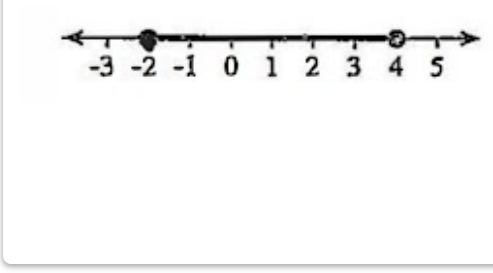
47) *

1 point

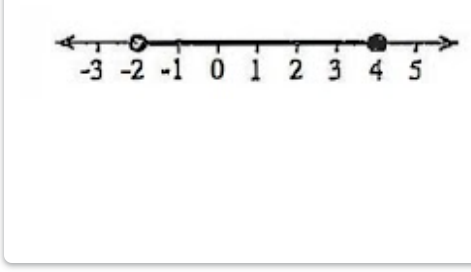
Which of the following line graphs represents $\{x: -2 < x \leq 4\}$?



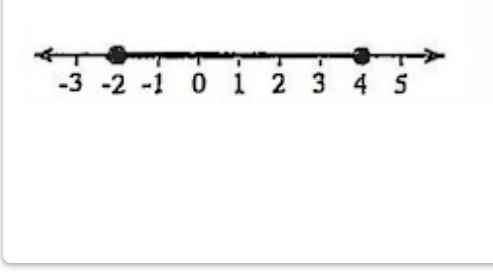
A)



B)



C)

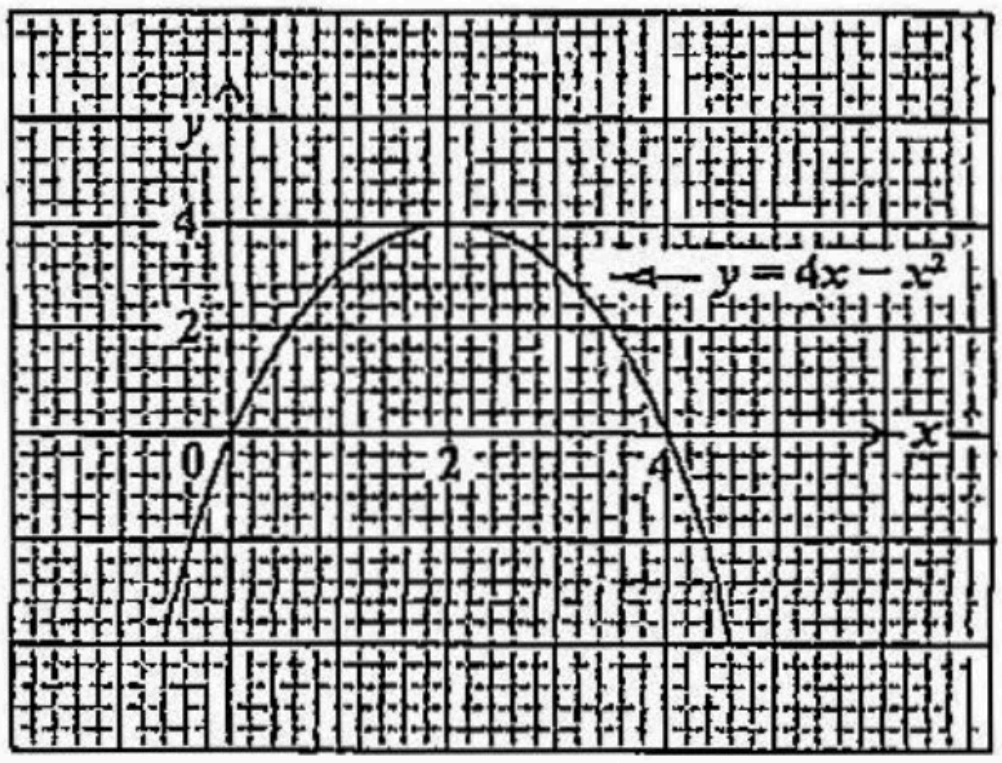


D)

48) *

1 point

Items 48–49 refer to the following graph of a quadratic function.



The maximum point of $y = 4x - x^2$ is

- A) (0, 0)
- B) (0, 4)
- C) (2, 4)
- D) (4, 2)

49) *

1 point

The values of x at the points where $y = 4x - x^2$ intersects $y = 0$ are

- A) x=0 and x=4
- B) x=0 and x=2
- C) x=2 and x=4
- D) x=0 and x=-4

50) *

1 point

Which of the following represents the equation of a straight line?

A) $y = \frac{4}{x}$

B) $y = 2x + 3$

C) $y = x^2 - 4$

D) $y = x^2 + 2x - 5$

51) *

1 point

Which of the following sets is represented by the function f: $x \to x^2 + 3$ where $x \in \{0, 1, 2, 3\}$?

A) $\{(0, 3), (1, 1), (2, 4), (3, 9)\}$

B) $\{(0, 3), (1, 4), (2, 5), (3, 6)\}$

C) $\{(0, 3), (1, 5), (2, 7), (3, 9)\}$

D) $\{(0, 3), (1, 4), (2, 7), (3, 12)\}$

52) *

1 point

A line L is parallel to the line

$$2x - 5y - 8 = 0.$$

What is the gradient of the line L?

A) $-\frac{5}{2}$

B) $-\frac{2}{5}$

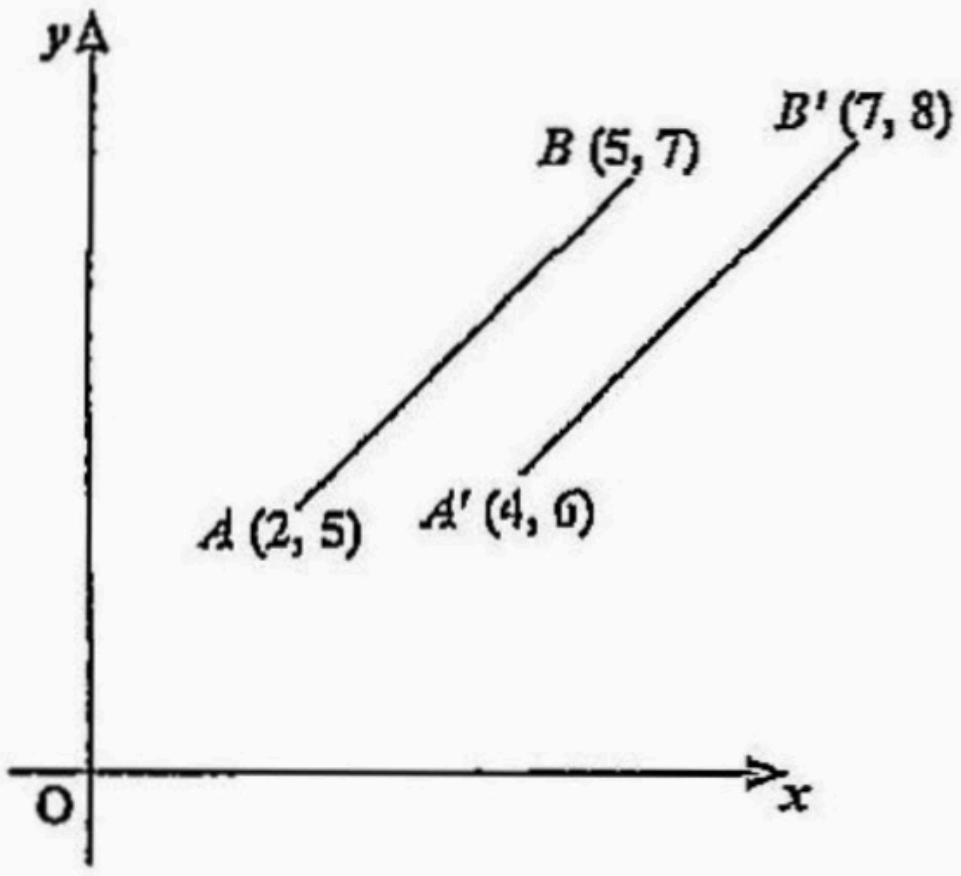
C) $\frac{2}{5}$

D) 2

53) *

1 point

Item 53 refers to the following diagram which shows a translation.



In the diagram, the translation by which AB is mapped onto $A'B'$ is represented by

$\begin{bmatrix} 1 \\ 1 \end{bmatrix}$

A)

$\begin{bmatrix} 2 \\ 1 \end{bmatrix}$

B)

$\begin{bmatrix} 3 \\ 2 \end{bmatrix}$

C)

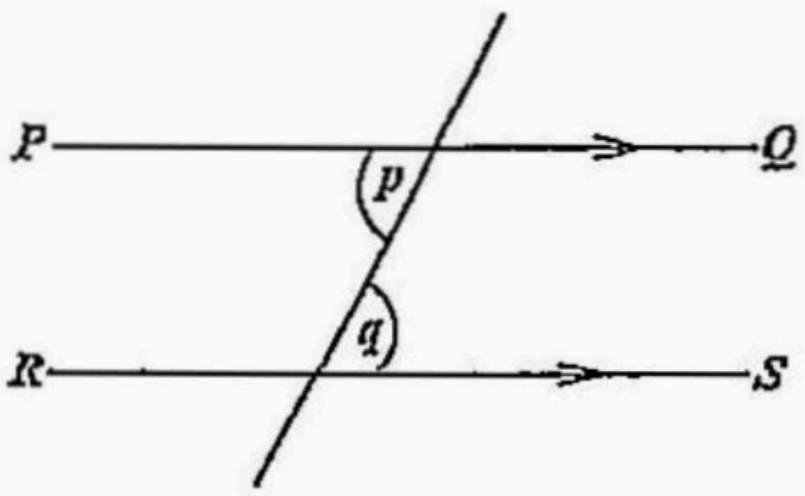
$\begin{bmatrix} 5 \\ 3 \end{bmatrix}$

D)

54) *

1 point

Item 54 refers to the following diagram.



In the diagram PQ and RS are parallel. Which of the following BEST describes the relation between p and q?

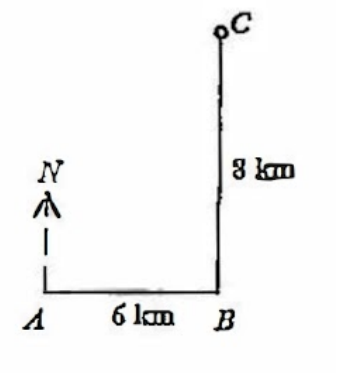
- A) p=q
- B) p < q
- C) p - q=180
- D) p + q=180

55) *

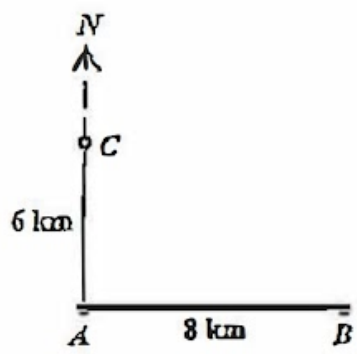
1 point

A ship sailed 8 km due east from A to B. It then sailed 6 km due north to C. Which of the following diagrams BEST represents the path of the ship?

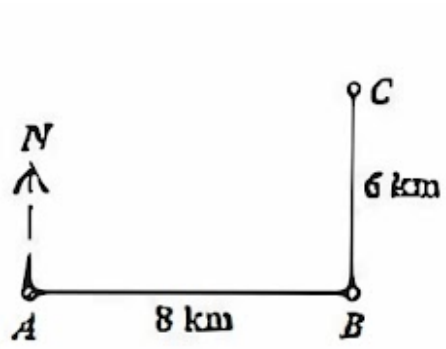
A)



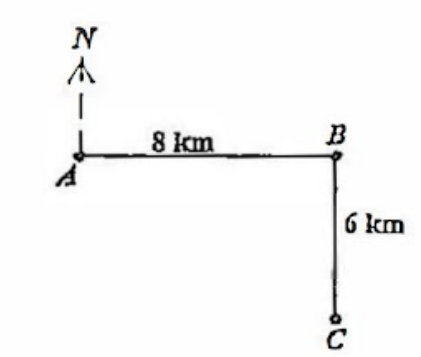
B)



C)



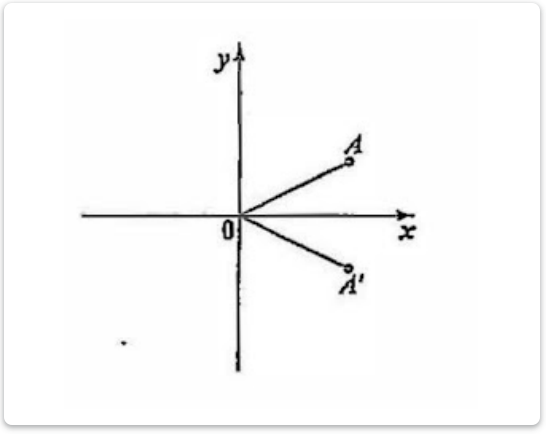
D)



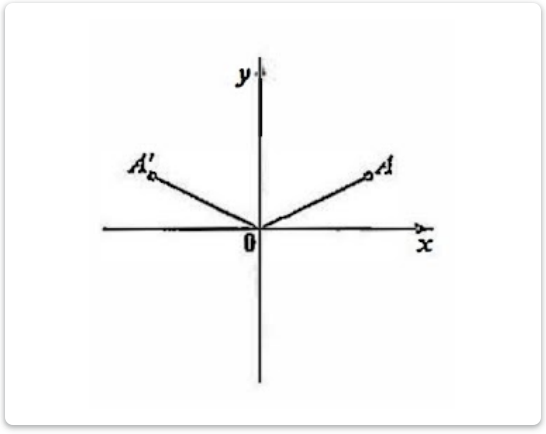
56) *

1 point

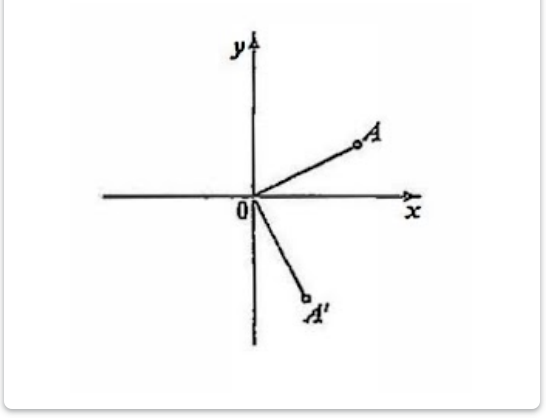
In each of the following diagrams, OA' is the image of OA. Which of the diagrams shows a reflection in the y-axis?



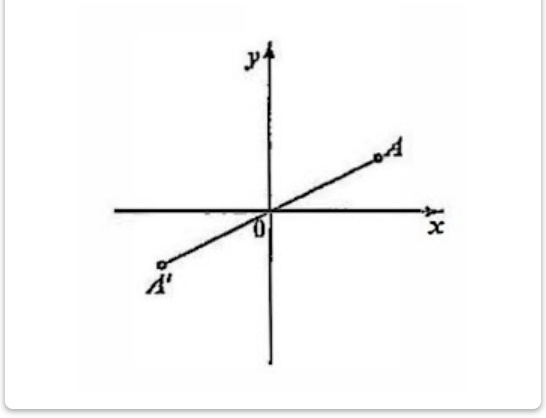
A)



B)



C)



D)

57) *

1 point

In triangle ABC, angle $A = x°$ and angle $B = 2x°$. What is the size of angle C?

A) $30°$

B) $60°$

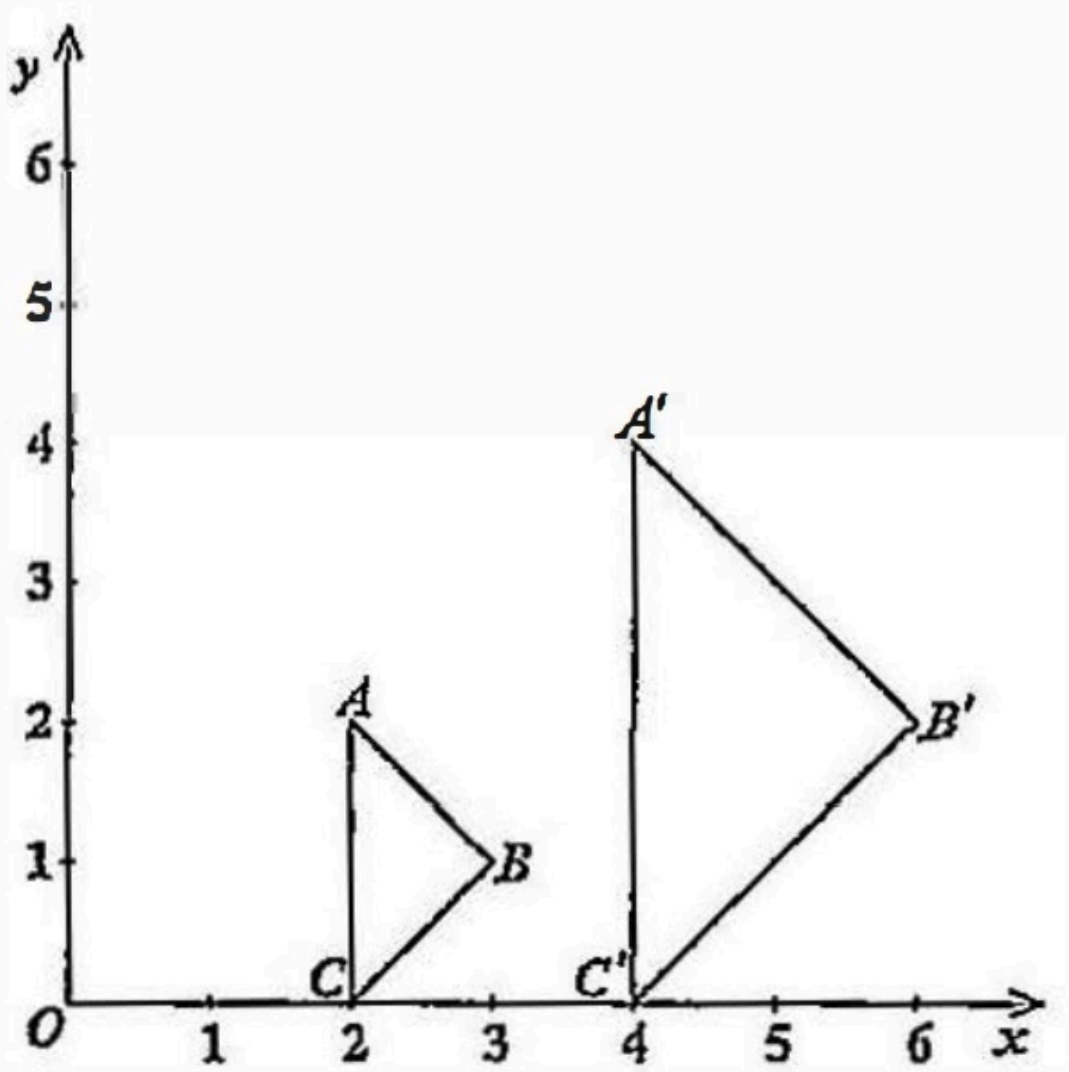
C) $\left[\frac{180}{3x}\right]°$

D) $(180 - 3x)°$

58) *

1 point

Item 58 refers to the following diagram which shows an enlargement.

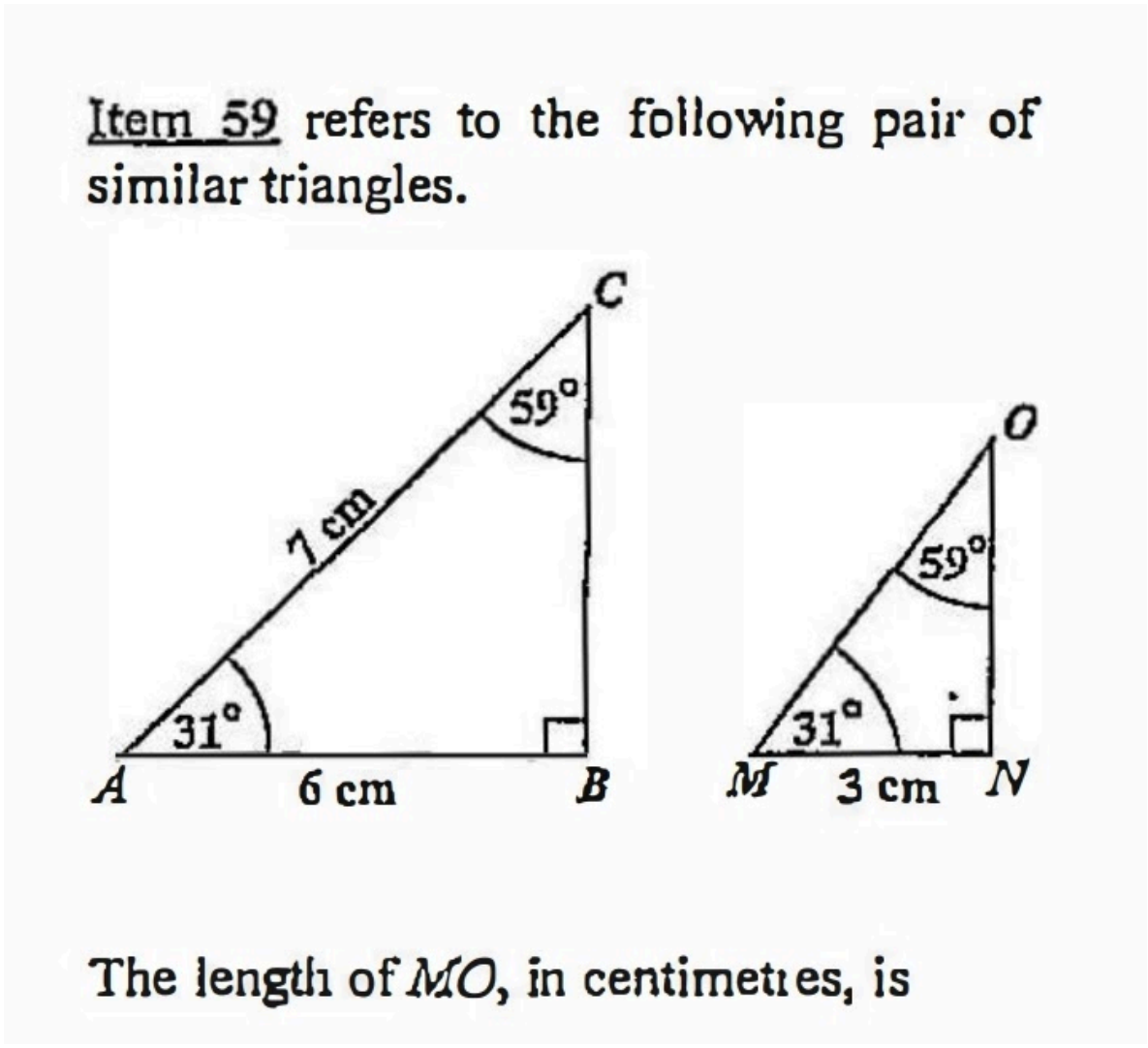


In the diagram, triangle ABC is mapped onto triangle $A'B'C'$ where O is the centre of enlargement. What is the scale factor of the enlargement?

- A) ½
- B) -2
- C) -½
- D) 2

59) *

1 point



A) 3

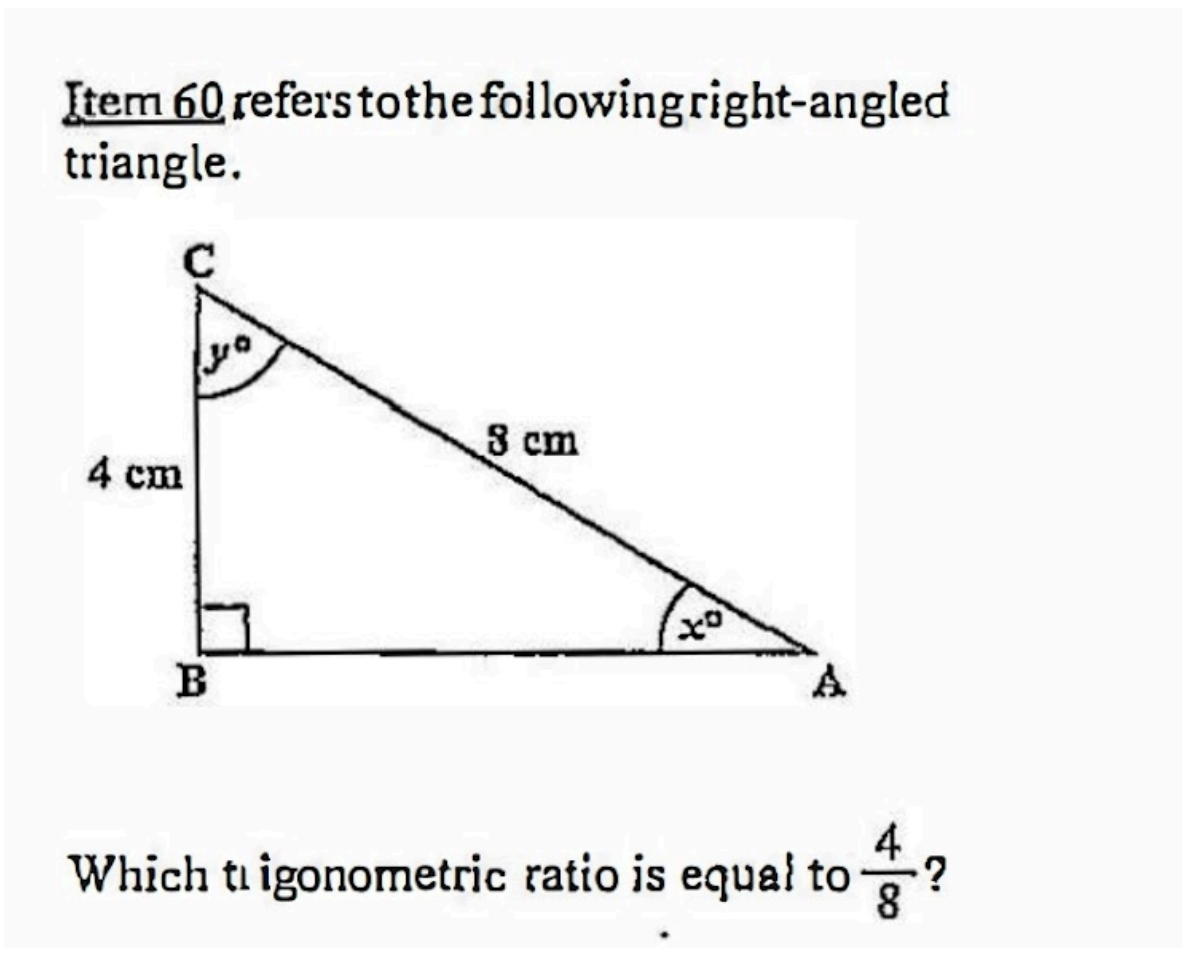
B) 3.5

C) 6

D) 7

60) *

1 point



A) sin x

B) tan y

C) cos x

D) tan x

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