



INTERNATIONAL ASSOCIATION for the
EVALUATION of EDUCATIONAL ACHIEVEMENT

SECOND

Study of

MATHEMATICS

GRADE 8

MATHEMATICS TEST — CORE

BOOKLET 3L



**The Ontario Institute for
Studies in Education
Educational Evaluation Centre**

1. $2\text{ m} + 3\text{ mm}$ is equal to

A 2.0003 m

B 2.003 m

C 2.03 m

D 2.3 m

E 5 m

2. $\frac{1}{5}$ is equal to

A 0.20%

B 2%

C 5%

D 20%

E 25%

3. If $5x + 4 = 4x - 31$,
then x is equal to

A -35

B -27

C 3

D 27

E 35

4. Four 1 L bowls of ice cream were set out at a party. After the party, 1 bowl was empty, 2 were half full, and 1 was three quarters full. How many litres of ice cream had been EATEN?

A $3\frac{3}{4}\text{ L}$

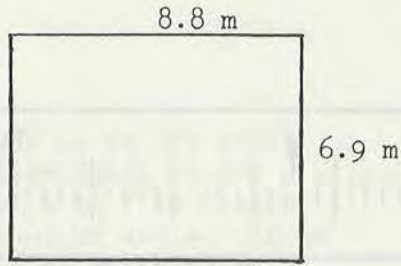
B $2\frac{3}{4}\text{ L}$

C $2\frac{1}{2}\text{ L}$

D $1\frac{3}{4}\text{ L}$

E None of these

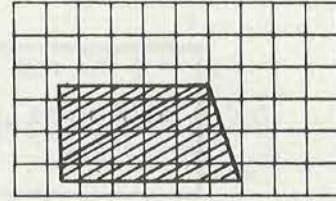
5.



Which of the following is the closest approximation to the area of the rectangle with measurements given?

- A 48 m^2
- B 54 m^2
- C 56 m^2
- D 63 m^2
- E 72 m^2

6.

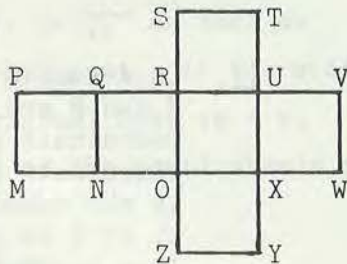


1 square unit

The area of the shaded figure, to the nearest square unit, is

- A 23 square units
- B 20 square units
- C 18 square units
- D 15 square units
- E 12 square units

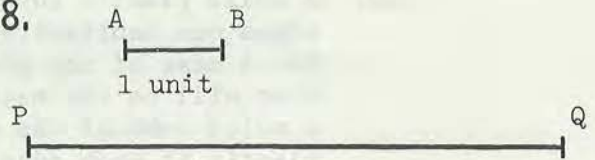
7.



The diagram shows a cardboard cube which has been cut along some edges and folded out flat. If it is folded to again make the cube, which two corners will touch corner P?

- A corners Q and S
- B corners T and Y
- C corners W and Y
- D corners T and V
- E corners U and Y

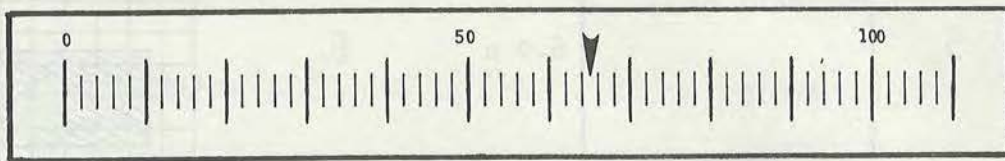
8.



The length of \overline{AB} is 1 unit. Which is the best estimate for the length of \overline{PQ} ?

- A 2 units
- B 6 units
- C 10 units
- D 14 units
- E 18 units

9.



On the above scale the reading indicated by the arrow is between

- A 51 and 52
- B 57 and 58
- C 60 and 62
- D 62 and 64
- E 64 and 66

10. A solid plastic cube with edges one centimetre long has a mass of one gram. What will be the mass of a solid cube of the same plastic if each edge is 2 cm long?

- A 8 g
- B 4 g
- C 3 g
- D 2 g
- E 1 g

11. On a number line two points A and B are given. The coordinate of A is -3 and the coordinate of B is $+7$. What is the coordinate of the point C , if B is the midpoint of the line segment AC ?

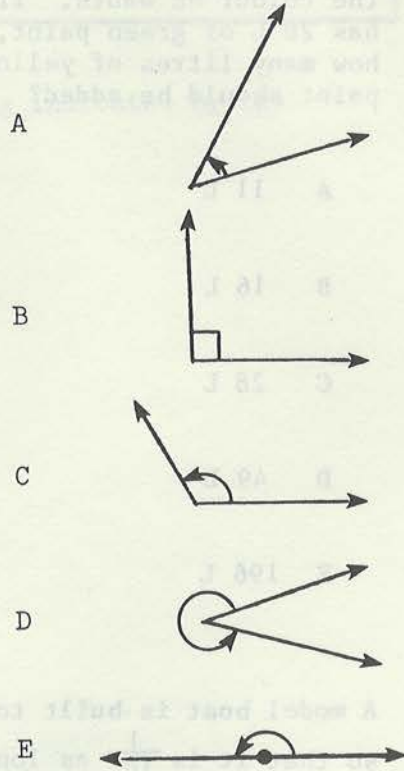
- A -13
- B $-\frac{1}{2}$
- C $+2$
- D $+12$
- E $+17$

12. A painter is to mix green and yellow paint in the ratio of 4 to 7 to obtain the colour he wants. If he has 28 L of green paint, how many litres of yellow paint should be added?
- A 11 L
B 16 L
C 28 L
D 49 L
E 196 L
13. If $P = LW$ and if $P = 12$ and $L = 3$, then W is equal to
- A $\frac{3}{4}$
B 3
C 4
D 12
E 36
14. A model boat is built to scale so that it is $\frac{1}{10}$ as long as the original boat. If the width of the original boat is 4 m, the width of the model should be
- A 0.1 m
B 0.4 m
C 1 m
D 4 m
E 40 m
15. The value of 0.2131×0.02958 is approximately
- A 0.6
B 0.06
C 0.006
D 0.0006
E 0.00006

16. $(-2) \times (-3)$ is equal to

- A -6
- B -5
- C -1
- D 5
- E 6

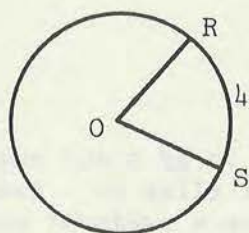
17. Which of the indicated angles is ACUTE?



18. If $\frac{4x}{12} = 0$, then x is equal to

- A 0
- B 3
- C 8
- D 12
- E 16

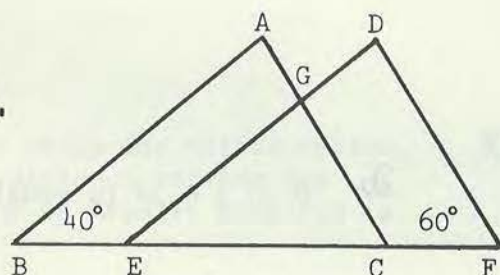
19.



The length of the circumference of the circle with center O is 24 , and the length of arc RS is 4 . What is the measure in degrees of the central angle ROS ?

- A 24
- B 30
- C 45
- D 60
- E 90

21.



In the above diagram, triangles ABC and DEF are congruent, with $BC = EF$. What is the measure of angle EGC ?

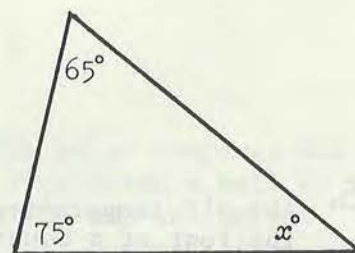
- A 20°
- B 40°
- C 60°
- D 80°
- E 100°

20.

In the discus-throwing competition, the winning throw was 61.60 m. The second place throw was 59.72 m. How much longer was the winning throw than the second place throw?

- A 1.12 m
- B 1.88 m
- C 1.92 m
- D 2.12 m
- E 121.32 m

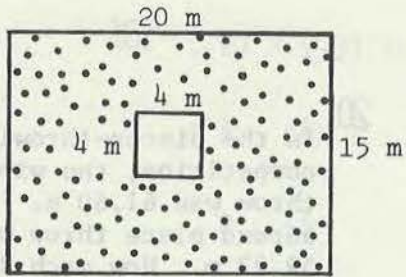
22.



x is equal to

- A 75
- B 70
- C 65
- D 60
- E 40

23.



A square is removed from the rectangle as shown. What is the area of the remaining part?

- A 316 m^2
- B 300 m^2
- C 284 m^2
- D 80 m^2
- E 16 m^2

25.

The air temperature at the foot of a mountain is 31°C . On top of the mountain the temperature is -7°C . How much warmer is the air at the foot of the mountain?

- A -38°
- B -24°
- C 7°
- D 24°
- E 38°

24.



Cloth is sold by the square metre. If 6 m^2 of cloth cost \$4.80, the cost of 16 m^2 will be

- A \$12.80
- B \$14.40
- C \$28.80
- D \$52.80
- E \$128.00

26.

0.40×6.38 is equal to

- A 0.2552
- B 2.452
- C 2.552
- D 24.52
- E 25.52

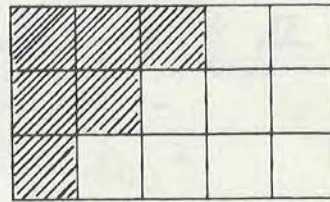
27. A shopkeeper has x kg of tea in stock. He sells 15 kg and then receives a new lot weighing $2y$ kg. What is the mass of the tea he now has?

- A $x - 15 - 2y$
 B $x + 15 + 2y$
 C $x - 15 + 2y$
 D $x + 15 - 2y$
 E None of these

29. When using the metric system, the distance between two towns is usually measured in

- A millimetres
 B centimetres
 C decimetres
 D metres
 E kilometres

28.



In the figure the little squares are all the same size and the area of the whole rectangle is equal to 1. The area of the shaded part is equal to

- A $\frac{2}{15}$
 B $\frac{1}{3}$
 C $\frac{2}{5}$
 D $\frac{3}{8}$
 E $\frac{1}{2}$

30. The table below compares the height from which a ball is dropped (d) and the height to which it bounces (b).

d	50	80	100	150
b	25	40	50	75

Which formula describes this relationship?

- A $b = d^2$
 B $b = 2d$
 C $b = \frac{d}{2}$
 D $b = d + 25$
 E $b = d - 25$

31. $\frac{2}{5} + \frac{3}{8}$ is equal to

A $\frac{5}{13}$

B $\frac{5}{40}$

C $\frac{6}{40}$

D $\frac{16}{15}$

E $\frac{31}{40}$

32. $7\frac{3}{20}$ is equal to

A 7.03

B 7.15

C 7.23

D 7.3

E 7.6

33. In a school of 800 pupils, 300 are boys. The ratio of the number of boys to the number of girls is

A 3 : 8

B 5 : 8

C 3 : 11

D 5 : 3

E 3 : 5

34. 20 is what percent of 80 ?

A 4%

B 20%

C 25%

D 40%

E None of these

35. The sentence "a number x decreased by 6 is less than 12" can be written as the inequality

A $x - 6 > 12$

B $x - 6 \geq 12$

C $x - 6 < 12$

D $6 - x \geq 12$

E $6 - x < 12$

36. 30 is 75% of what number?

A 40

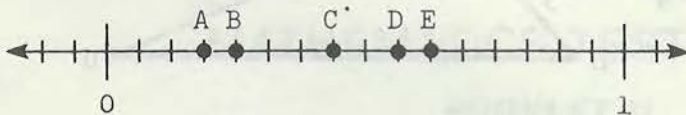
B 90

C 105

D 225

E 2250

37. Which of the points A, B, C, D, E on this number line corresponds to $\frac{5}{8}$?



A point A

B point B

C point C

D point D

E point E

38. 20% of 125 is equal to

A 6.25

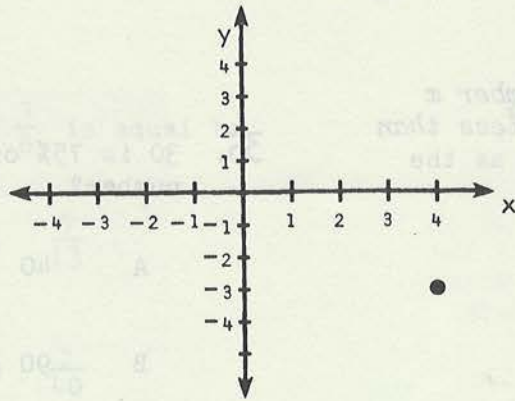
B 12.50

C 15

D 25

E 50

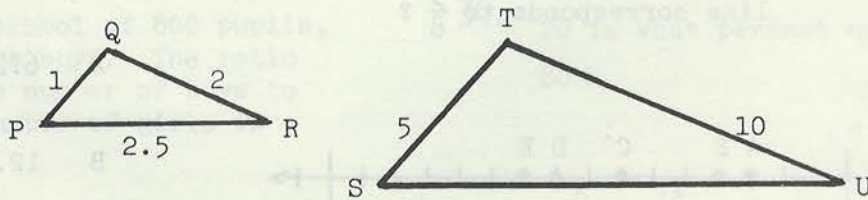
39.



What are the coordinates of point P?

- A (-3,4)
- B (-4,-3)
- C (3,4)
- D (4,-3)
- E (-4,3)

40.



Triangles PQR and STU are similar. How long is \overline{SU} ?

- A 5
- B 10
- C 12.5
- D 15
- E 25



INTERNATIONAL ASSOCIATION for the
EVALUATION of EDUCATIONAL ACHIEVEMENT

SECOND

Study of

MATHEMATICS

GRADE 8
MATHEMATICS TEST

BOOKLET 2LA



The Ontario Institute for
Studies in Education
Educational Evaluation Centre

1

1. Which of the following is equal to a quarter of a million?

A 25 250

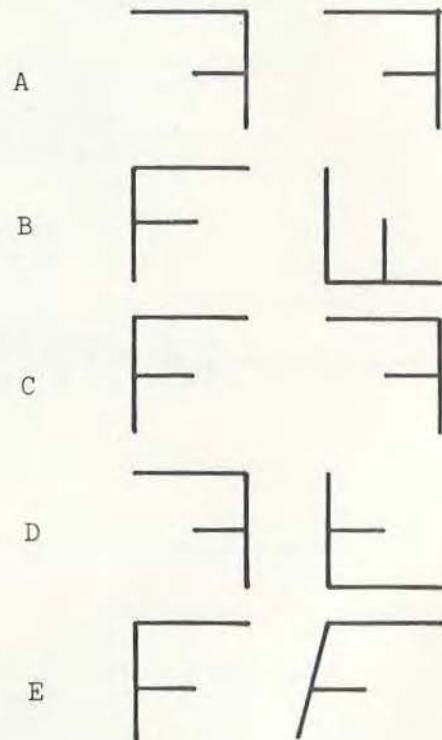
B 40 000

C $\frac{1}{4\ 000\ 000}$

D 250 000

E 2 500 000

2. In which diagram below is the second figure the image of the first figure under a reflection (flip) in a line?



3. Which is the closest estimate for the answer to $5\frac{3}{7} + 6\frac{5}{8}$?

A about 8

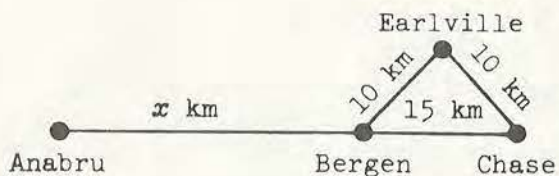
B about 11

C about 12

D about 15

E about 31

4.



The Davis family took a car trip from Anabru through Bergen to Chase. They then drove back to Bergen through Earlville, and then returned to their home in Anabru. If the total distance they drove was 115 km, how far is it from Anabru to Bergen?

- A 20 km
- B 35 km
- C 40 km
- D 75 km
- E 80 km

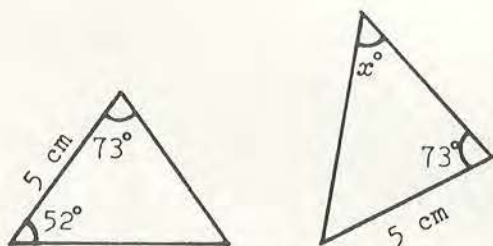
5.

A number x is multiplied by itself and the result is added to four times the original number.

This can be expressed as

- A $x^2 + 4$
- B $x + 4$
- C $2x + 4$
- D $x(x^2 + 4)$
- E $x^2 + 4x$

6.



The triangles shown above are congruent. The measure of some of the sides and angles are as shown. What is x ?

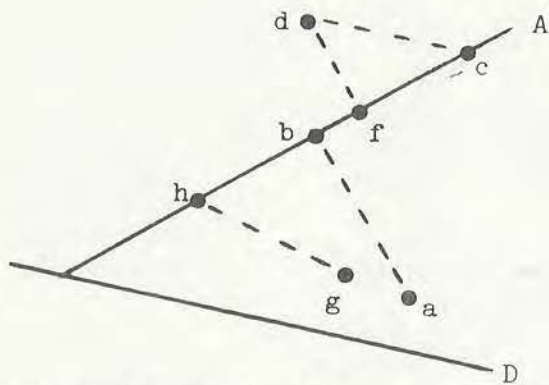
- A 52
- B 55
- C 65
- D 73
- E 75

7.

A 15 cm piece is cut from a ribbon one metre long. What is the length of the remaining piece?

- A 85 cm
- B 115 cm
- C 985 cm
- D 1015 cm
- E 9985 cm

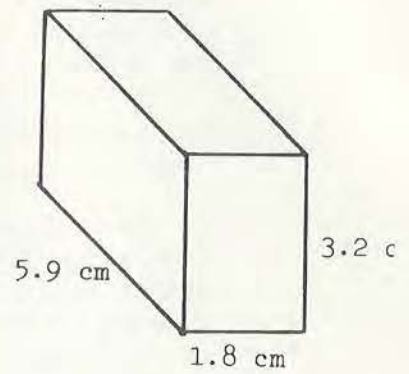
8.



If D is the direction of projection and A is the axis of projection, which of the following statements is correct?

- A $p(a) = b$
- B $p(d) = c$
- C $p(d) = f$
- D $p(g) = h$
- E $p(c) = d$

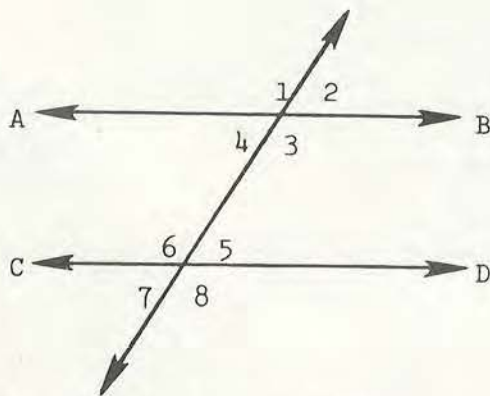
9.



The figure above shows a rectangular box. Which of the following is closest to the volume of this box?

- A 16 cm^3
- B 18 cm^3
- C 28 cm^3
- D 36 cm^3
- E 48 cm^3

10.



Lines \overleftrightarrow{AB} and \overleftrightarrow{CD} are parallel. Two angles whose measures must add up to 180° are

- A $\angle 1$ and $\angle 3$
- B $\angle 4$ and $\angle 6$
- C $\angle 2$ and $\angle 5$
- D $\angle 2$ and $\angle 7$
- E $\angle 1$ and $\angle 8$

11. A team scored an average of 3 points per game over 5 games. How many points altogether were scored in the 5 games?

- A $\frac{3}{5}$
B $\frac{5}{3}$
C 3
D 5
E 15

12.

Test Score	Tally	Frequency
4	/	1
5	///	3
6	/// /	6
7	//	2
8	////	4
9	///	3
10	/	1

A table shows scores for a class on a 10-point test. How many in the class made a score GREATER than 7?

- A 2
B 8
C 10
D 12
E 20

13. $\frac{3}{8} - \frac{1}{5}$ is equal to

A $\frac{1}{20}$

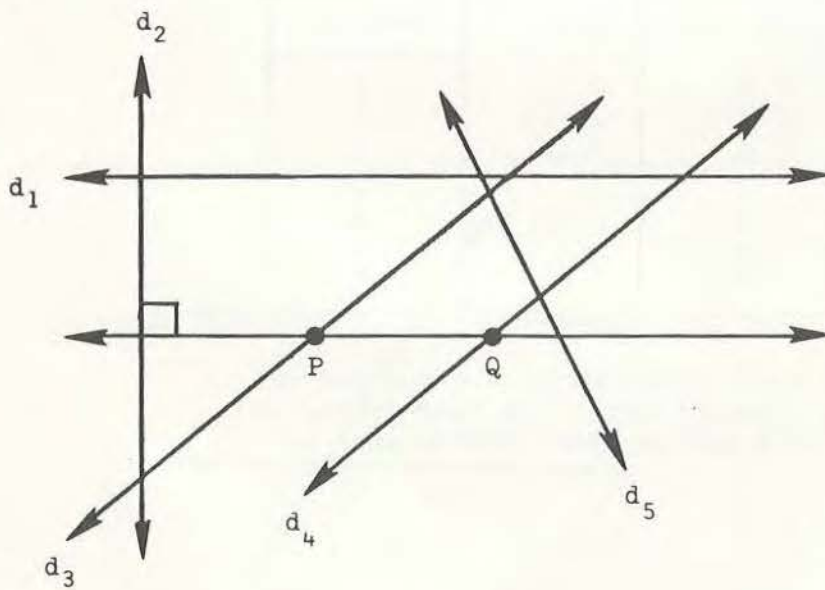
B $\frac{7}{40}$

C $\frac{7}{20}$

D $\frac{19}{40}$

E $\frac{2}{3}$

14.



A d_1

B d_2

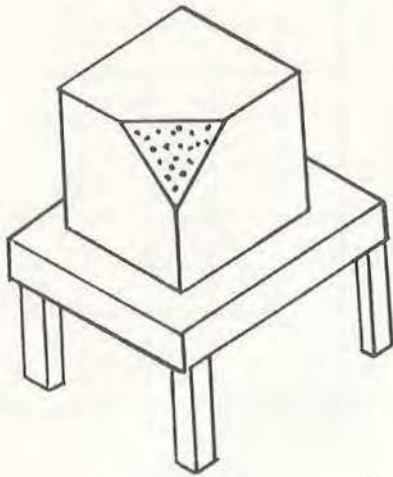
C d_3

D d_4

E d_5

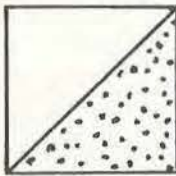
Among the following lines d_1, d_2, d_3, d_4, d_5 ,
which has no point equidistant from P and from Q?

15.

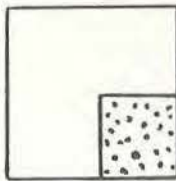


The figure above shows a wooden cube with one corner cut off and shaded. Which of the following drawings shows how this cube would look when viewed from directly above it?

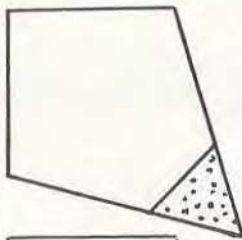
A



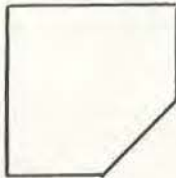
B



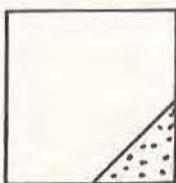
C



D



E



6

16.

x	3	6	P
y	7	Q	35

The table above shows the values of x and y , where x is proportional to y . What are the values of P and Q?

A $P = 14$ and $Q = 31$

B $P = 10$ and $Q = 14$

C $P = 10$ and $Q = 31$

D $P = 14$ and $Q = 15$

E $P = 15$ and $Q = 14$

17.

1st row	1
2nd row	1 - 1
3rd row	1 - 1 + 1
4th row	1 - 1 + 1 - 1
5th row	1 - 1 + 1 - 1 + 1

What is the sum of the 50th row?

A 0

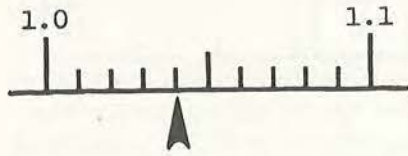
B 1

C 2

D 25

E 30

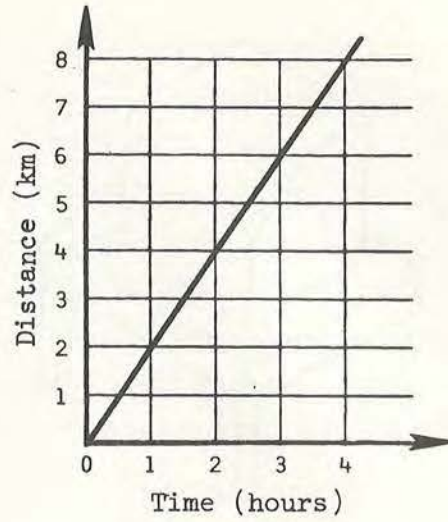
18.



The position on the scale indicated by the arrow is

- A 1.004
- B 1.04
- C 1.08
- D 1.4
- E 1.8

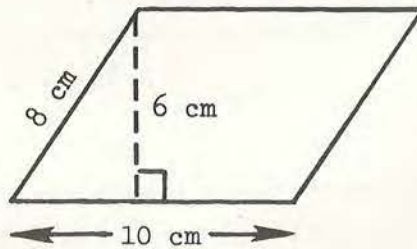
19.



The graph shows the distance traveled by a tractor during a period of 4 h. How fast is the tractor moving?

- A 1 km/h
- B 2 km/h
- C 4 km/h
- D 8 km/h
- E There is not enough information

20.



What is the area of the above parallelogram?

- A 30 cm²
- B 36 cm²
- C 48 cm²
- D 60 cm²
- E 80 cm²

21.

$$0.004 \overline{) 24.56}$$

In the division above,
the correct answer is

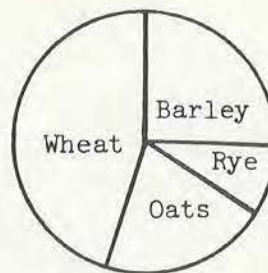
- A 0.614
- B 6.14
- C 61.4
- D 614
- E 6140

23.

The price of an article was \$100. The price was first raised by 10% and was then reduced by 10% of the new price. What is the price of the article now?

- A \$ 90
- B \$ 99
- C \$100
- D \$101
- E \$110

22.



The circle graph shows the proportion of various grain crops produced by a country. Which of the following statements is TRUE?

- A More oats than rye is produced.
- B The largest crop is barley.
- C Equal quantities of wheat and barley are produced.
- D The smallest crop is oats.
- E Wheat and oats together make up less than half the total grain crop.

24.

If $10^2 \times 10^3 = 10^n$,
then n is equal to

- A 4
- B 5
- C 6
- D 8
- E 9

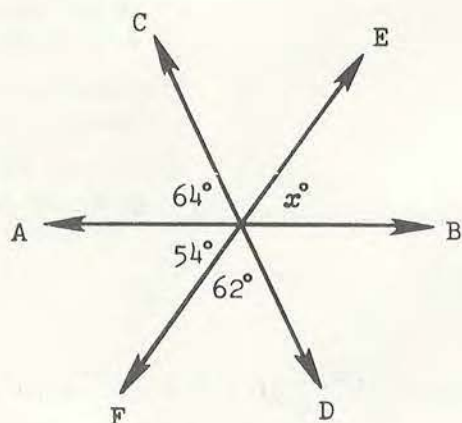
25. A car takes 15 min to travel 10 km. What is the speed of the car?

A 30 km/h
 B 40 km/h
 C 60 km/h
 D 90 km/h
 E 150 km/h

26. If $x = -3$, the value of $-3x$ is

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

27.



\overleftrightarrow{AB} , \overleftrightarrow{CD} , and \overleftrightarrow{EF} are intersecting straight lines as shown above. The measures of certain angles are shown. x is equal to

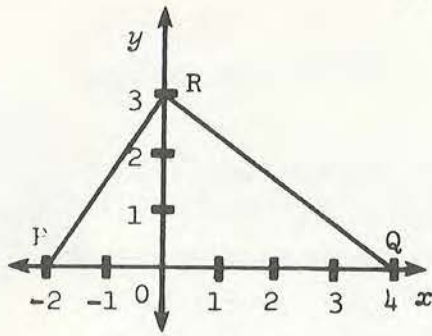
A 54
 B 62
 C 64
 D 126
 E 128

28.

When $x = 2$, $\frac{7x + 4}{5x - 4}$ is equal to

A 11
 B 3
 C $\frac{11}{5}$
 D $\frac{9}{5}$
 E $\frac{7}{5}$

29.



What is the area of triangle PQR?

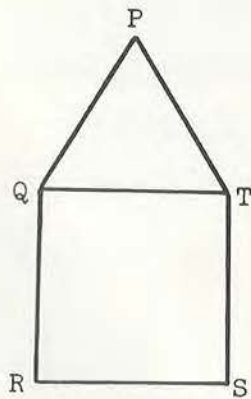
- A 3 square units
- B 6 square units
- C 9 square units
- D 12 square units
- E 18 square units

30.

What is the square root of 12×75 ?

- A 6.25
- B 30
- C 87
- D 625
- E 900

31.



The figure QRST is a square and PQT an equilateral triangle. If $PQ = 6$ cm then the area of the square is

- A 64 cm^2
- B 48 cm^2
- C 40 cm^2
- D 36 cm^2
- E 24 cm^2

32. Peter and Paul decided to start saving money. Peter can save 3 dollars each month and Paul can save 5 dollars. At this rate, after how many months will Paul have exactly 10 dollars more than Peter?

A 2
B 3
C 4
D 5
E 8

34.

One of the following points can be joined to the point $(-3, 4)$ by a line segment which cuts NEITHER the x NOR the y axis. Which one?

A $(-2, 3)$
B $(2, -3)$
C $(2, 3)$
D $(-2, -3)$
E $(4, -3)$

33. 0.00046 is equal to

A 46×10^{-3}
B 4.6×10^{-4}
C 0.46×10^3
D 4.6×10^4
E 46×10^5

35.



Which of the following sequences of numbers is in the order in which they occur from left to right on the number line?

A $0, \frac{1}{2}, -1$
B $0, -1, \frac{1}{2}$
C $-1, -\frac{1}{2}, 0$
D $-1, 0, -\frac{1}{2}$
E $-\frac{1}{2}, -1, 0$



INTERNATIONAL ASSOCIATION for the
EVALUATION of EDUCATIONAL ACHIEVEMENT

SECOND
Study of
MATHEMATICS

GRADE 8
MATHEMATICS TEST
BOOKLET 2LB



**The Ontario Institute for
Studies in Education
Educational Evaluation Centre**

1. 72% is equal to

- A 7200
- B 720
- C 72
- D 7.2
- E 0.72

2. Which of the following is thirty-seven thousandths?

- A 37 000
- B 37
- C 0.37
- D 0.037
- E 0.0037

3. The petals on 100 flowers of different kinds were carefully counted, and the results are shown in this table.

<u>No. of Petals</u>	<u>Frequency</u>
10-12	5
13-15	22
16-18	48
19-21	18
22-24	7

How many of the flowers had FEWER than 19 petals?

- A 48
- B 52
- C 73
- D 75
- E 93

4. There are 7 000 000 girls under the age of 21 in a country with a total population of 36 000 000. If a circle graph were drawn showing the distribution of the population, the angle in the sector representing girls under the age of 21 would have measure

- A 7°
 B 20°
 C 21°
 D 70°
 E 72°

5.

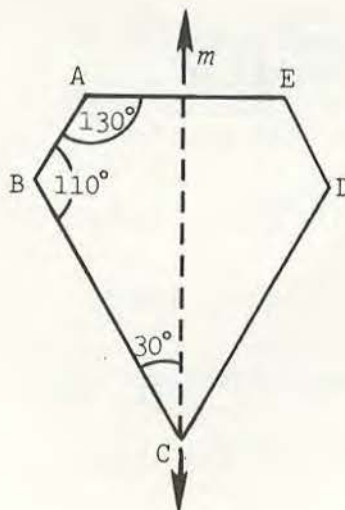
m	-1	1	2	4
n	-1	3	5	9

For the table shown, a formula that could relate m and n is

- A $n = m$
 B $n = 3m$
 C $n = -m^2 + 1$
 D $n = m^2 + 1$
 E $n = 2m + 1$

6. The line m is a line of symmetry for figure ABCDE. The measure of angle BCD is

- A 30°
 B 50°
 C 60°
 D 70°
 E 110°



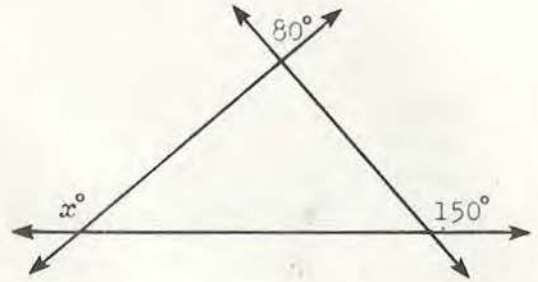
7. Alexandra walked from Riverview to Bridgeport, which are 3.1 km apart. During her walk she lost her watch, went back 1.7 km to find it, and then continued in the original direction until she reached Bridgeport. How many kilometres had Alexandra walked altogether when she arrived at Bridgeport?

- A 1.4
 B 4.8
 C 6.5
 D 8.2
 E None of these.

9. Joe had three test scores of 78, 76 and 74, while Mary had scores of 72, 82 and 74. How did Joe's average compare with Mary's?

- A Joe's was 1 point higher.
 B Joe's was 1 point lower.
 C Both averages were the same.
 D Joe's was 2 points higher.
 E Joe's was 2 points lower.

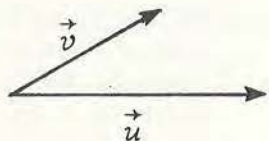
8.



Three straight lines intersect as shown in the diagram. x is equal to

- A 30
 B 50
 C 60
 D 110
 E 150
10. $\frac{3}{5} \div \frac{2}{7}$ is equal to
- A $\frac{21}{10}$
 B $\frac{5}{12}$
 C $\frac{10}{21}$
 D $\frac{6}{35}$
 E $\frac{31}{35}$

11.

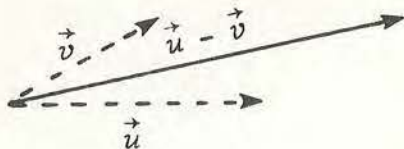


\vec{u} and \vec{v} are two vectors.

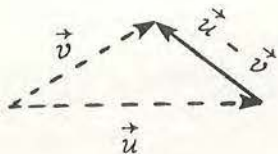
Which figure below represents

$\vec{u} - \vec{v}$?

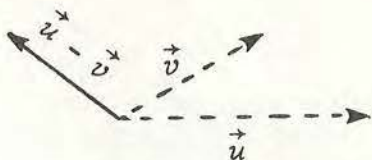
A



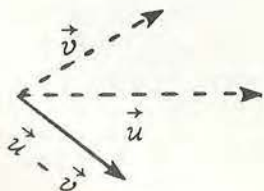
B



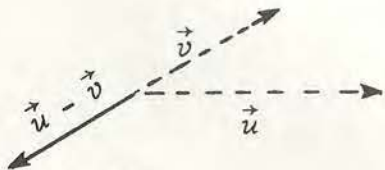
C



D



E



12. If $6x - 3 = 15$

then $6x = 15 - 3$ (i)

and $6x = 12$ (ii)

and $x = \frac{12}{6}$ (iii)

and $x = 2$ (iv)

The error in the above reasoning, if one exists, FIRST APPEARS in line

A (i)

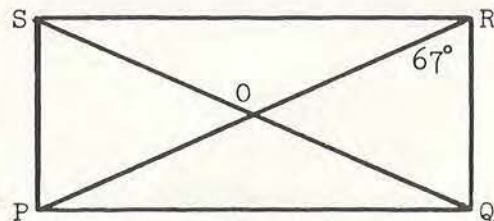
B (ii)

C (iii)

D (iv)

E None of these, there is no error.

13.



In the above rectangle the measure of $\angle ROQ$ is

A 23°

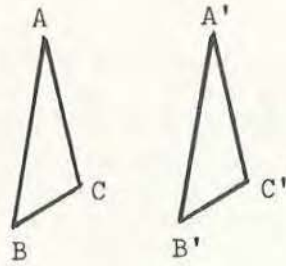
B 45°

C 46°

D 54°

E 67°

14.



ΔABC and $\Delta A'B'C'$ are congruent and their corresponding sides are parallel. ΔABC maps onto $\Delta A'B'C'$ by a

- A reflection
- B glide reflection (slide flip)
- C rotation (turn)
- D enlargement
- E translation (slide)

16. The value of $2^3 \times 3^2$ is

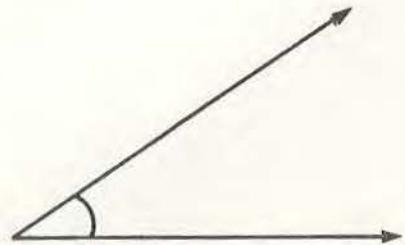
- A 30
- B 36
- C 64
- D 72
- E None of these

15. Which of the following operations with whole numbers will ALWAYS give a whole number?

- I Addition
- II Multiplication
- III Division

- A I only
- B II only
- C III only
- D I and II only
- E II and III only

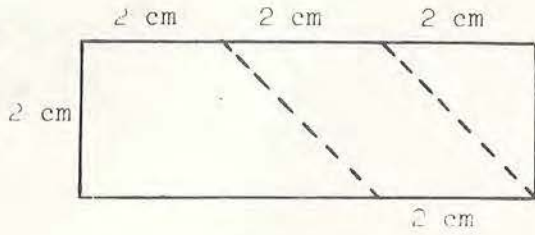
17.



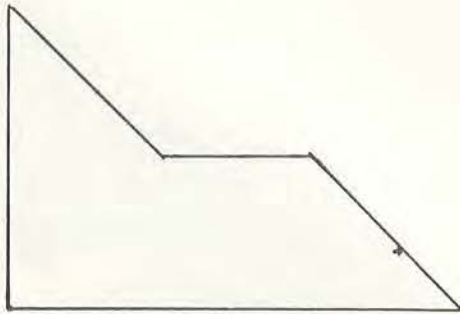
The measure of the angle shown is nearest to:

- A 155°
- B 145°
- C 50°
- D 35°
- E 15°

18.



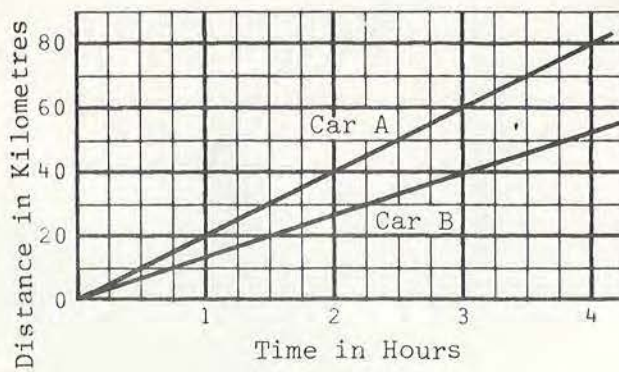
The rectangle shown above is cut along the dotted lines and the three parts put together, without overlapping, to give the figure shown below.



The area in square centimetres of the new figure is

- A 8 cm^2
- B 10 cm^2
- C 12 cm^2
- D 14 cm^2
- E 16 cm^2

19.



- A 1 h 15 min
- B 1 h 30 min
- C 2 h
- D 2 h 30 min
- E 2 h 35 min

How much longer does it take for car B to go 50 km than it does for car A to go 50 kilometres?

20. Which of these numbers is a prime number?

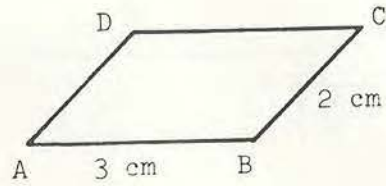
A 21
 B 22
 C 23
 D 24
 E 25

22. Find the value of N.

$$N = 10^3 + 10^1 + 10^0 + 10^{-2}$$

A $N = 0$
 B $N = 20$
 C $N = 1011.01$
 D $N = 100$
 E Some other value

- 21.



$$\overline{AB} \parallel \overline{DC} \text{ and } \overline{AD} \parallel \overline{BC}.$$

Quadrilateral ABCD is a

A rhombus
 B parallelogram
 C square
 D rectangle
 E None of these

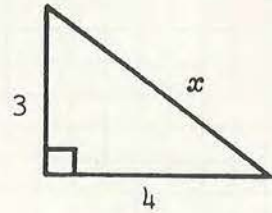
23. If there are 300 kJ in 100 g of a certain food, how many kilojoules are there in a 30 g portion of that food?

A 90 kJ
 B 100 kJ
 C 900 kJ
 D 1000 kJ
 E 9000 kJ

24. Simplify: $5x + 3y + 2x - 4y$

- A $7x + 7y$
- B $8x - 2y$
- C $6xy$
- D $7x - y$
- E $7x + y$

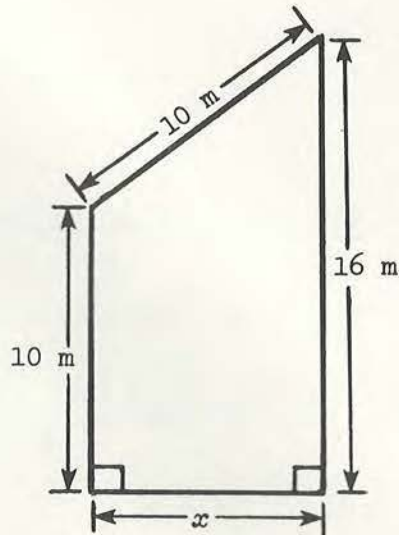
25.



Which of these is a correct statement for this triangle?

- A $x^2 = 3^2 + 4^2$
- B $x^2 + 3^2 = 4^2$
- C $x = 4^2 - 3^2$
- D $x^2 = 4^2 - 3^2$
- E $x = 4 + 3$

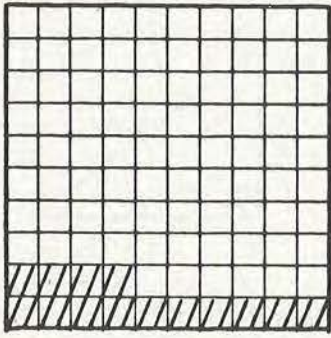
26.



x is equal to

- A 4 m
- B 6 m
- C 8 m
- D 10 m
- E 12 m

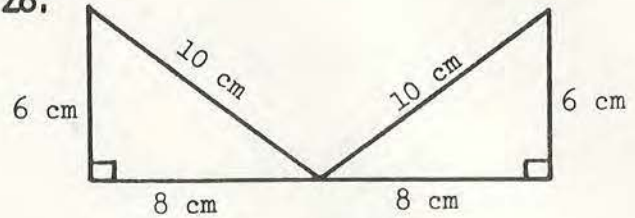
27.



The large square has area 1 square unit. The area of the shaded part is

- A 14 square units
- B 1.4 square units
- C 0.14 square units
- D 0.014 square units
- E 0.0014 square units

28.



The total area of the two triangles is

- A $6 \times 8 \text{ cm}^2$
- B $\frac{6 \times 8}{2} \text{ cm}^2$
- C $\frac{10 \times 6}{2} \text{ cm}^2$
- D $\frac{16 \times 12}{2} \text{ cm}^2$
- E $\frac{20 \times 12}{2} \text{ cm}^2$

29. If y dollars are shared equally among four boys, how many dollars does each boy receive?

- A $y - 4$
- B $\frac{4}{y}$
- C 4
- D $\frac{y}{4}$
- E $4y$

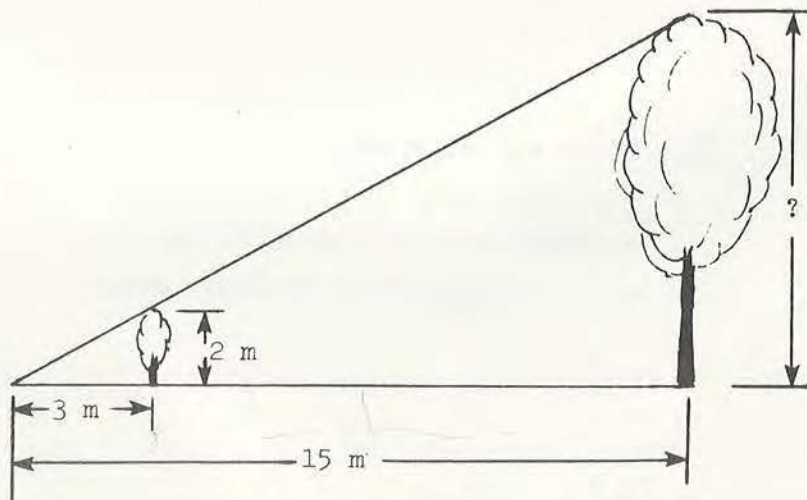
30. $(-6) - (-8)$ is equal to

- A 14
- B 2
- C -2
- D -10
- E -14

31. The length of a box was measured and found to be 9 cm TO THE NEAREST CENTIMETRE. Which of these could have been the length of the box measured more accurately?

- A 10 cm
- B 9.9 cm
- C 9.62 cm
- D 9.6 cm
- E 8.6 cm

32.



The picture above shows how Pedro used a short tree to find the height of the tall tree. What answer should Pedro get?

- A 10 m
- B 12 m
- C 14 m
- D 17 m
- E 20 m

33. $\sqrt{75}$ is between

- A 4 and 5
- B 5 and 6
- C 6 and 7
- D 7 and 8
- E 8 and 9

34. $(22 \times 18) - (47 + 59)$
is equal to

- A 290
- B 300
- C 384
- D 408
- E 502

35. There are 35 students in a class.
 $\frac{1}{5}$ of them come to school by bus,
another $\frac{2}{5}$ come by bicycle. How
many come to school by other means?

- A 7
- B 14
- C 21
- D 28
- E 35



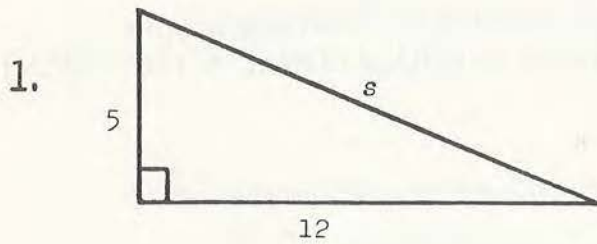
INTERNATIONAL ASSOCIATION for the
EVALUATION of EDUCATIONAL ACHIEVEMENT

SECOND
Study of
MATHEMATICS

GRADE 8
MATHEMATICS TEST
BOOKLET 2LC



**The Ontario Institute for
Studies in Education
Educational Evaluation Centre**



What is the value of s ?

A 7

B 13

C 15

D 17

E None of these

2. Which of the following is most likely to be nearest to the mass of a normal man?

A 8.5 kg

B 85 kg

C 185 kg

D 850 kg

E 1850 kg

3. Which of the following is a pair of equivalent fractions?

A $\frac{5}{8}$ and $\frac{2}{3}$

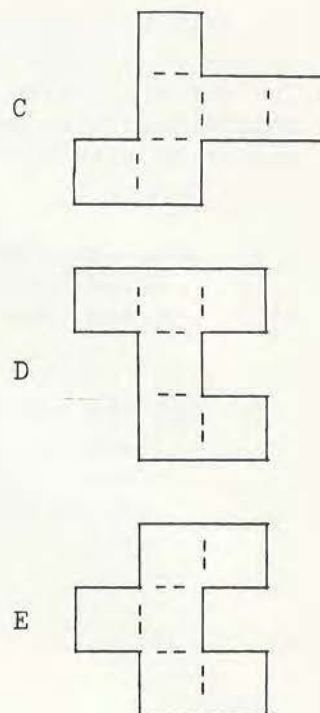
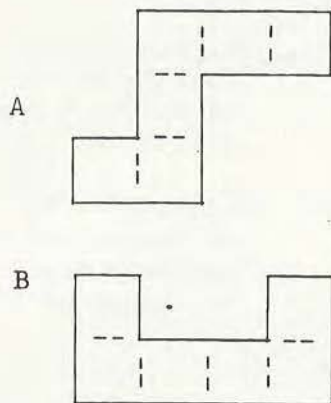
B $\frac{5}{6}$ and $\frac{2}{3}$

C $\frac{4}{5}$ and $\frac{14}{15}$

D $\frac{3}{5}$ and $\frac{9}{15}$

E $\frac{1}{2}$ and $\frac{14}{24}$

4. Which of the following patterns can be folded along the dotted sides to make a cube?



5. $1\frac{2}{5} - \frac{1}{2}$ is equal to

A $\frac{2}{3}$

B $\frac{9}{10}$

C $1\frac{1}{10}$

D $1\frac{1}{7}$

E $1\frac{1}{3}$

6. There are five black buttons and one red button in a jar. If you pull out one button at random, what is the probability that you will get the red button?

A 0

B $\frac{1}{6}$

C $\frac{1}{5}$

D $\frac{5}{6}$

E 1

7. You wish to know about the popularity of the soft-drink SLOSH in your school. The way of finding out, from among the following, which will give results you can be most sure of will be to

- A note the number of empty SLOSH bottles in the trash cans
- B ask the manager of the snack bar how many cases of SLOSH he has ordered in the last month
- C ask your friends whether they think that SLOSH is the most popular soft-drink
- D discuss with the driver of the soft-drink delivery truck what he thinks of SLOSH
- E keep a record of soft-drink sales in the school by brand name over a period of 1 week.

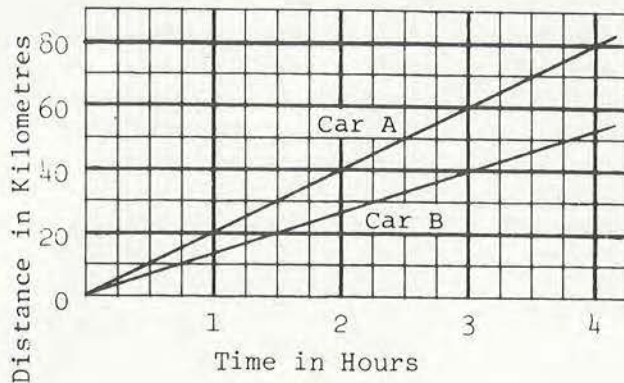
8. A group of children was divided into 7 teams with nine in each team. Later, the same group of children was divided into teams with seven in each team. How many teams were there then?

- A 7
- B 8
- C 9
- D 16
- E 63

9. If two triangles are SIMILAR, which of the following statements is TRUE?

- A Their corresponding angles MUST be congruent.
- B Their corresponding sides MUST be congruent.
- C Their corresponding sides MUST be parallel.
- D They MUST have the same area.
- E They MUST have the same shape and size.

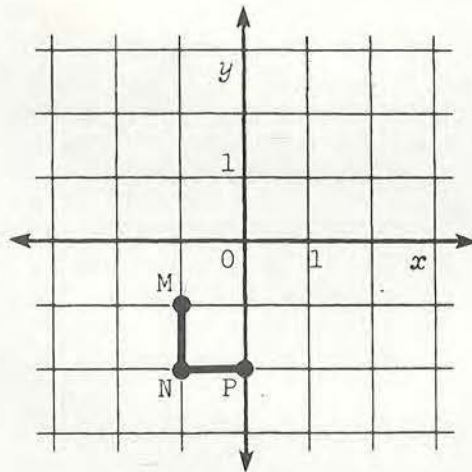
10.



- A 2
- B 10
- C 15
- D 20
- E 25

Three hours after starting, car A is how many kilometres ahead of car B?

11.



- A (1,-2)
- B (0,-3)
- C (0,-1)
- D (-1,-2)
- E None of these

Suppose you start at point $M(-1,-1)$, move a distance of one unit to $N(-1,-2)$, then turn left and move one unit to the point $P(0,-2)$. If you again turn left and move one unit, you will now be at the point with coordinates

12. The cost of printing greeting cards consists of a fixed charge of 100 cents and a charge of 6 cents for each card printed. Which of the following equations can be used to determine the cost of printing n cards?

A cost = $(100 + 6n)$ cents
B cost = $(106 + n)$ cents
C cost = $(6 + 100n)$ cents
D cost = $(106n)$ cents
E cost = $(600n)$ cents

13. "Six times a certain number (call it q) equals the sum of eight and twice the number." This can be written as

A $6q = 2(8 + q)$
B $6(q + 8) = 2q$
C $6(q + 8) = 8 + 2q$
D $6q = 8 + 2q$
E $q = 1$

14. Candidate A received 70 percent of the votes cast in an election. If 4200 votes were cast in the election, how many votes did Candidate A receive?

A 2800
B 2900
C 2940
D 3000
E 4130

15. What is the capacity of a cubic container 10 cm by 10 cm by 10 cm?

A 1 L
B 10 L
C 100 L
D 1000 L
E 1000 cm

16. If $x = y = z = 1$,

then $\frac{x - z}{x + y}$ is equal to

A -2

B -1

C 0

D $\frac{1}{2}$

E 1

17. Michael has a large number of wooden blocks which are cubical in shape with each edge one centimetre long. What is the maximum number of these blocks that can be used to fill a rectangular box with interior dimensions 10 cm long, 10 cm wide and 7 cm high?

A 27

B 70

C 140

D 280

E 700

18. If the ratio of 2 to 5 equals the ratio of n to 100, then n is equal to

A 10

B 20

C 40

D 150

E 250

19. One bell rings every 8 minutes, a second bell rings every 12 minutes. They both ring at exactly 12 o'clock. After how many minutes will they next ring together?

A 8

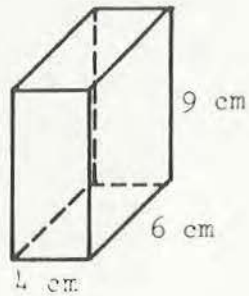
B 12

C 20

D 24

E 96

20. What is the SURFACE AREA of this solid rectangular box?



- A 50 cm^2
 B 100 cm^2
 C 114 cm^2
 D 216 cm^2
 E 228 cm^2
22. The speed of sound is 340 m/s. How long will it take before the sound of a car horn reaches your ears if the car is 714 m away?

- A 0.21 s
 B 2.1 s
 C 21 s
 D 210 s
 E None of these

21. 3.23×10^5 is equal to

- A 0.000 032 3
 B 3.230 00
 C 32 300
 D 323 000
 E 32 300 000

23. A quadrilateral MUST be a parallelogram if it has

- A one pair of adjacent sides equal
 B one pair of parallel sides
 C a diagonal as axis of symmetry
 D two adjacent angles equal
 E two pairs of parallel sides

24. Which of the following is FALSE when a , b , and c are different real numbers?

- A $(a + b) + c = a + (b + c)$
 B $ab = ba$
 C $a + b = b + a$
 D $(ab)c = a(bc)$
 E $a - b = b - a$

25. 74.236 rounded to the nearest hundredth is

- A 74.2
 B 74.3
 C 74.23
 D 74.24
 E 74.240

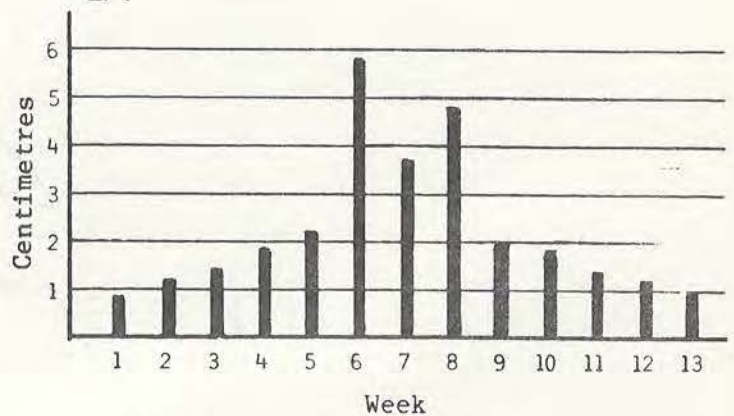
26.

A bowling ball travels 4 m/s. The distance in metres traveled in t s is given by $d = 4t$. In the table below, x is equal to

t	d
0	0
1	4
2	8
3	x
4	16

- A 6
 B 10
 C 12
 D 14
 E None of these

27.



In the graph, rainfall in centimetres is plotted for 13 weeks. The average weekly rainfall during the period is approximately

- A 1 cm
 B 2 cm
 C 3 cm
 D 4 cm
 E 5 cm

28. 162×45 is equal to

A 1378

B 1458

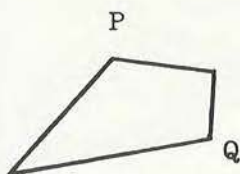
C 5890

D 6290

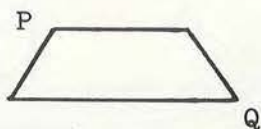
E 7290

29. If segment \overline{PQ} were drawn for each figure shown below, it would divide one of the figures into two congruent triangles. Which figure?

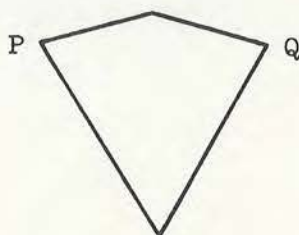
A



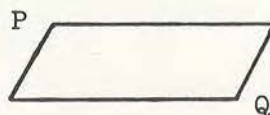
B



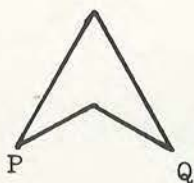
C



D



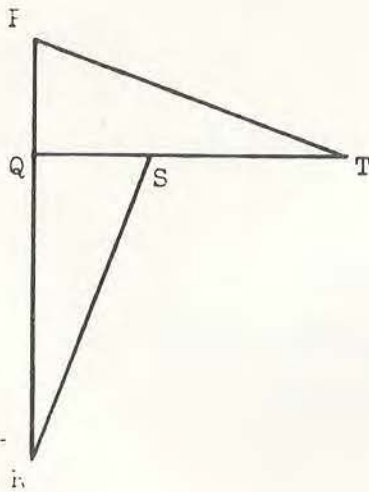
E



30. The arithmetic mean (average) of: 1.50, 2.40, 3.75 is equal to

A 2.40
 B 2.55
 C 3.75
 D 7.65
 E None of these

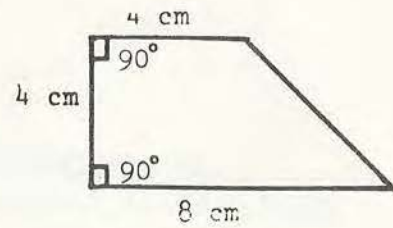
32.



ΔPQT can be rotated (turned) onto ΔSQR . The centre of rotation is

A point P
 B point Q
 C point R
 D point S
 E point T

31.

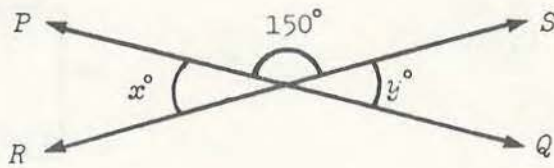


There is a brass plate of the shape and dimensions shown in the figure above. What is its area in square centimetres?

A 16
 B 24
 C 32
 D 64
 E 96

33. Since $4 \times 9 = 36$, $\sqrt{36}$ is equal to

A 4×9
 B 4×3
 C 2×9
 D 2×3
 E $\sqrt{2} \times \sqrt{3}$



34. If, in the given figure, \overleftrightarrow{PQ} and \overleftrightarrow{RS} are intersecting straight lines, then $x + y$ is equal to

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

35. $\frac{a}{15} - \frac{b}{5}$ is equal to

- A $\frac{a - 3b}{15}$
- B $\frac{5a - 15b}{15}$
- C $\frac{a - b}{10}$
- D $\frac{a - b}{75}$
- E None of these



INTERNATIONAL ASSOCIATION for the
EVALUATION of EDUCATIONAL ACHIEVEMENT

— SECOND —
Study of
— MATHEMATICS —

GRADE 8
MATHEMATICS TEST

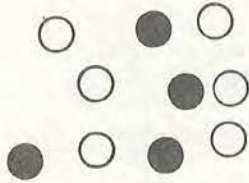
BOOKLET 2LD



The Ontario Institute for
Studies in Education
Educational Evaluation Centre

1

1. The picture shows some black and some white marbles. Of all these marbles what fraction are white?



- A $\frac{1}{2}$
- B $\frac{6}{4}$
- C $\frac{4}{6}$
- D $\frac{6}{10}$
- E $\frac{4}{10}$

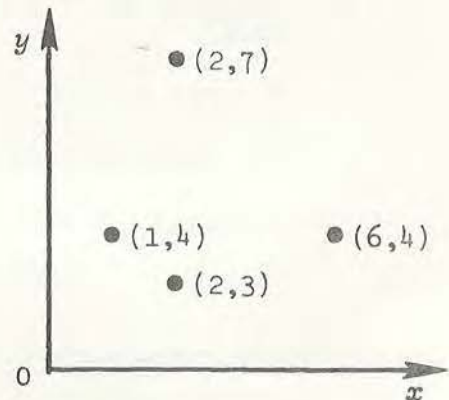
3. A runner ran 3 000 m in exactly 8 min. What was his average speed in metres per second?

- A 3.75 m/s
- B 6.25 m/s
- C 16.0 m/s
- D 37.5 m/s
- E 62.5 m/s

2. What is the volume of a rectangular box with interior dimensions 10 cm long, 10 cm wide, and 7 cm high?

- A 27 cm^3
- B 70 cm^3
- C 140 cm^3
- D 280 cm^3
- E 700 cm^3

- 4.



The straight line joining the points (2,3) and (2,7) cuts the straight line joining the points (1,4) and (6,4) at the point

- A (4,2)
- B (1,4)
- C (1,3)
- D (2,3)
- E (2,4)

5. The set of integers less than 5 is represented on one of the number lines shown below. Which one?

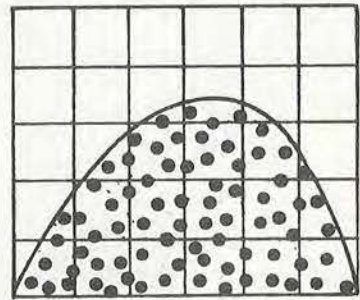


6. Which of the following is (are) TRUE?

- I $(53 \times 73) \times 17 = 53 \times (73 \times 17)$
 II $133 \times (78 + 89) = (133 \times 78) + 89$
 III $133 \times (78 + 89) = (133 \times 78) + (133 \times 89)$

- A I only
 B II only
 C III only
 D I and II only
 E I and III only

7.

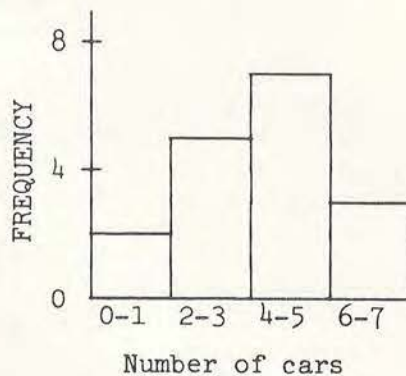


Each of the small squares in the figure is 1 square unit. Which is the best estimate of the area of the shaded region?

- A 10 square units
 B 12 square units
 C 14 square units
 D 16 square units
 E 18 square units

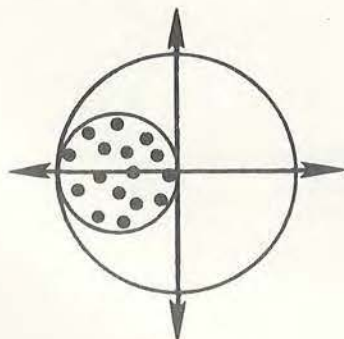
8. Here are a table of data and a graph of the same data. What is x ?

Number of Cars	Frequency
0 or 1	2
2 or 3	x
4 or 5	7
6 or 7	3



- A 2
- B 3
- C 4
- D 5
- E 6

9. The area of the shaded circle is what part of the area of the large circle?



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

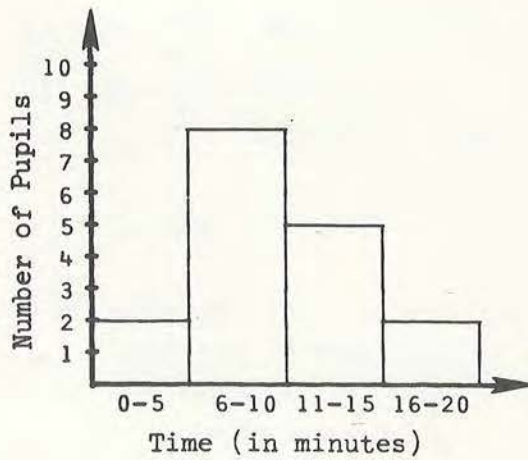
10.

Find the sum:

$$\begin{array}{r} 3 \text{ weeks } 5 \text{ days} \\ + 9 \text{ weeks } 6 \text{ days} \\ \hline \end{array}$$

- A 12 weeks 1 day
 B 12 weeks 4 days
 C 13 weeks 1 day
 D 13 weeks 4 days
 E 13 weeks 11 days

11.



- A 2
 B 5
 C 7
 D 8
 E 15

The graph shows the time of travel by pupils from home to school. How many pupils must travel for MORE than 10 min?

12. Matchsticks are arranged as follows:



If the pattern is continued, how many matchsticks are used in making the 10th figure?

- A 30
B 33
C 36
D 39
E 42

13.
$$\begin{array}{r} 1054 \\ - 865 \\ \hline \end{array}$$

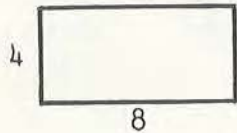
- A 189
B 199
C 211
D 289
E 299

14. In a school election with three candidates, Joe received 120 votes. Mary received 50 votes, and George received 30 votes. What percent of the total number of votes did Joe receive?

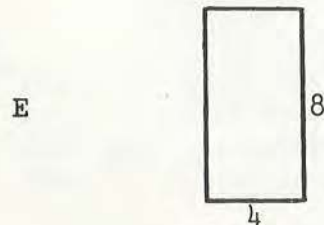
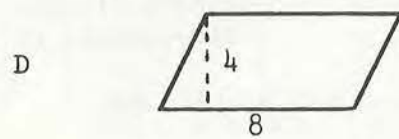
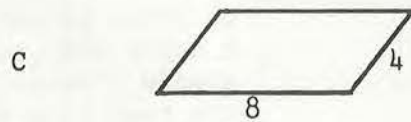
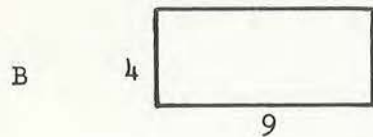
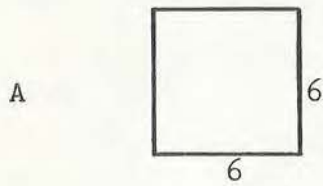
- A $\frac{6}{10}\%$
B 40%
C 60%
D 80%
E 120%

15. On level ground, a boy 5 units tall casts a shadow 3 units long. At the same time a nearby telephone pole 45 units high casts a shadow the length of which, in the same units, is

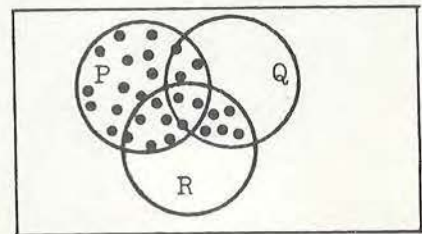
- A 24
B 27
C 30
D 60
E 75



16. One of the following figures is congruent to the figure above. Which one?



17. The symbol $P \cap Q$ represents the intersection of sets P and Q and the symbol $P \cup Q$ represents the union of sets P and Q. Which of the following represents the shaded portion of the diagram below?



A $(P \cap Q) \cup R$

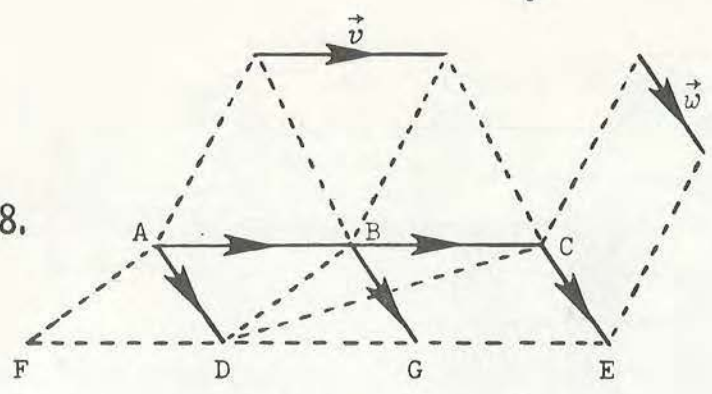
B $P \cup (Q \cap R)$

C $P \cap (Q \cup R)$

D $(P \cap Q) \cap R$

E $(P \cup Q) \cap R$

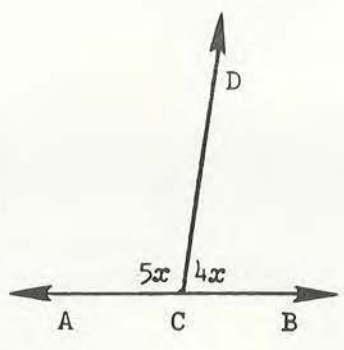
18.



Given \vec{v} and \vec{w} as shown in the figure above, what is \vec{DB} , the vector from D to B?

- A $\vec{v} + \vec{w}$
- B $\vec{v} - \vec{w}$
- C $\vec{w} - \vec{v}$
- D $-\vec{w} - \vec{v}$
- E $\vec{v} + 2\vec{w}$

19.



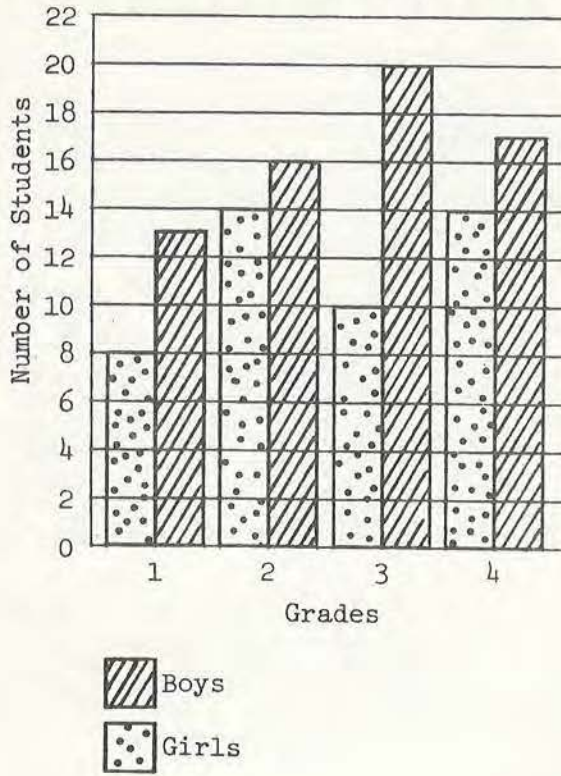
If AB is a straight line, what is the measure in degrees of angle BCD?

- A 20
- B 40
- C 50
- D 80
- E 100

20. Which equation is true for ALL values of n ?

- A $2 + n = n + 2$
- B $3 + n = 4 + 2$
- C $n + 1 = 1$
- D $2n + 1 = n$
- E $n + 3 = 3n$

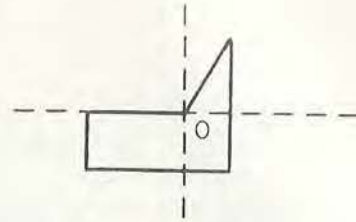
21. STUDENTS IN GRADES 1, 2, 3 AND 4



Which of these is a TRUE statement about the information shown on the graph?

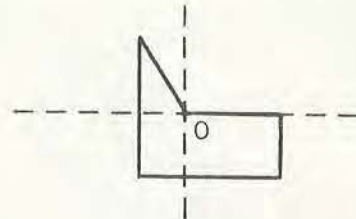
- A Grade 2 is the smallest class
- B Grades 2 and 4 have the same number of students
- C Grade 3 has twice as many boys as girls
- D Grade 4 has more girls than boys
- E Grade 1 has as many boys as there are girls in grade 4

22.

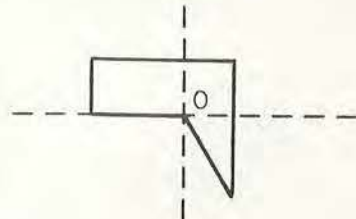


A half-turn (180°) about point O is applied to the figure above. Which of the figures below is the result?

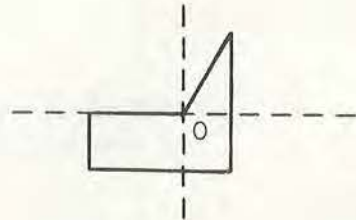
A



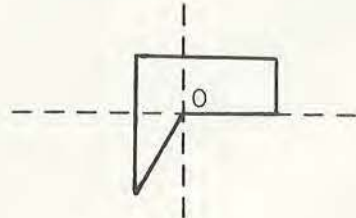
B



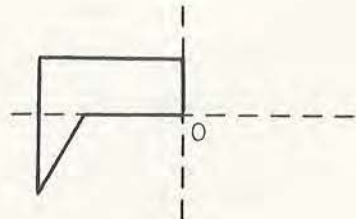
C



D



E



23. How many pieces of pipe, each 20 m long, would be required to construct a pipeline one kilometre in length?
- A 5
B 50
C 500
D 5000
E 50,000
24. In a quadrilateral, two of the angles each have measure of 110° , and the measure of a third angle is 90° . What is the measure of the remaining angle?
- A 50°
B 90°
C 130°
D 140°
E None of these
25. $\frac{1}{2} \times \frac{1}{4}$ is equal to
- A $\frac{1}{8}$
B $\frac{1}{6}$
C $\frac{2}{8}$
D $\frac{2}{4}$
E 8
26. $\frac{x}{2} < 7$ is equivalent to
- A $x < \frac{7}{2}$
B $x < 5$
C $x < 14$
D $x > 5$
E $x > 14$

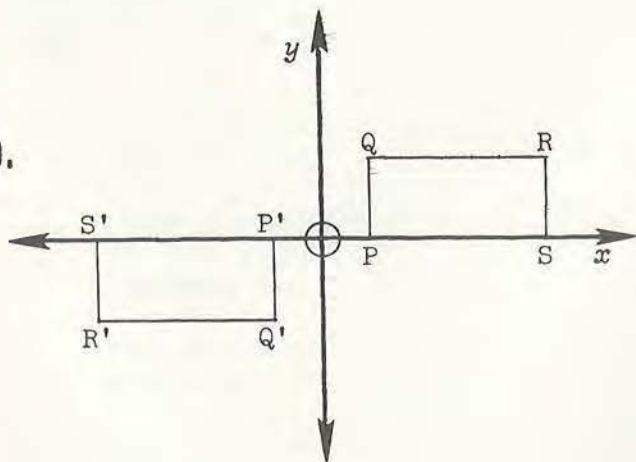
27. Soda costs a cents for each bottle, including the deposit, but there is a refund of b cents on each empty bottle. How much will Henry have to pay for x bottles if he brings back y empties?

- A $ax + by$ cents
 B $ax - by$ cents
 C $(a - b)x$ cents
 D $(a + x) - (b + y)$ cents
 E None of these

28. Which of the following equals $7 \times (3 + 9)$?

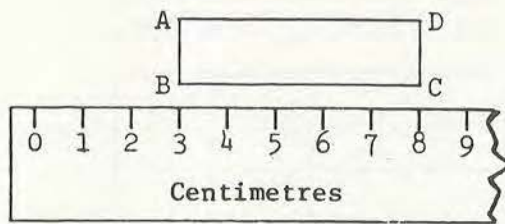
- A $(7 \times 3) + (7 \times 9)$
 B $(7 \times 9) + (3 \times 9)$
 C $(7 \times 3) + (3 \times 9)$
 D 7×27
 E $21 + 9$

29.



PQRS is a rectangle. Its image after a transformation is the rectangle P'Q'R'S', as shown above. The transformation used could have been

- A a rotation (turn) about the origin
 B a reflection (flip) in the y -axis.
 C a translation (slide) parallel to the x -axis
 D a reflection (flip) in the x -axis
 E a translation (slide) parallel to the y -axis



30. According to the scale shown, the length of side BC of rectangle ABCD (to the NEAREST CENTIMETRE) is

A 5 cm
 B 6 cm
 C 7 cm
 D 8 cm
 E 9 cm

31. $-5(6 - 4)$ is equal to

A 50
 B 26
 C 10
 D -10
 E -26

32. \$150 is divided in the ratio of 2 to 3. The smaller of the two amounts is

A \$ 30
 B \$ 50
 C \$ 60
 D \$ 90
 E \$120

33.

847.36

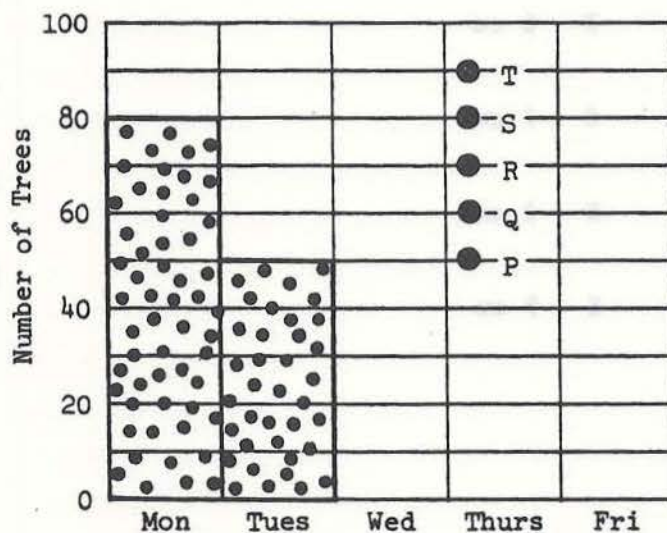
In the number in the box the digit 6 represents

A $6 \times \frac{1}{100}$
 B $6 \times \frac{1}{10}$
 C 6×1
 D 6×10
 E 6×100

34. Here is a table that shows the number of trees planted along a highway in a week.

Days of the Week	Mon	Tues	Wed	Thurs	Fri
Number of Trees Planted	80	50	60	90	75

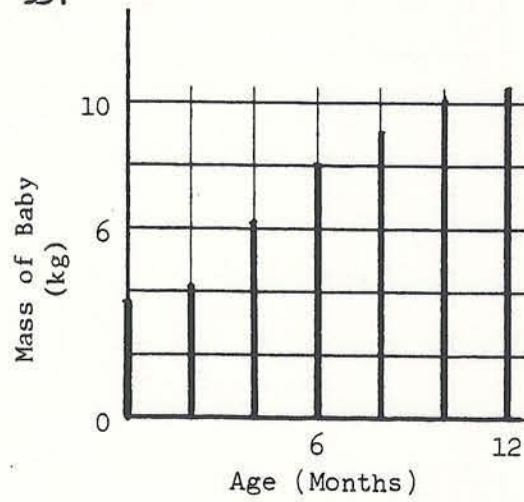
On the diagram below, the graph for the first two days' planting has been drawn.



If the graph were completed, which point would indicate the top of the bar on Thursday?

- A point P
- B point Q
- C point R
- D point S
- E point T

35.



The gain in mass from
6 to 10 months was

- A 1 kg
- B 2 kg
- C 4 kg
- D 6 kg
- E 8 kg