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MATHEMATICS

PAPER 1 (CORE/EXTENDED) 3815/1

Tuesday **21 MAY 2024** 1:00 P.M.–2:30 P.M.

Additional materials:
Calculator (not graphing)
Geometrical instruments

MINISTRY OF EDUCATION NATIONAL EXAMINATIONS

BAHAMAS GENERAL CERTIFICATE OF SECONDARY EDUCATION

INSTRUCTIONS TO CANDIDATES

Do not open this booklet until you are told to do so.

Write your School Number, Candidate Number, Surname and Initials in the spaces provided at the top of this page.

Answer **ALL** questions in the spaces provided for each question.

ALL working must be shown.

ALL working must be done in blue or black ink, except for drawings, lines and constructions which may be done in pencil.

INFORMATION FOR CANDIDATES

Calculators [**NOT GRAPHING CALCULATORS**] may be used.

Tracing paper may be used.

Geometrical instruments are required.

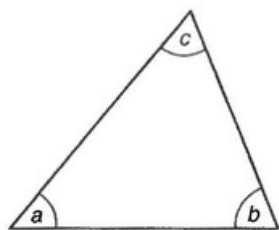
The mark for each question, or part question, is shown in brackets [].

The total number of marks for this paper is 100.

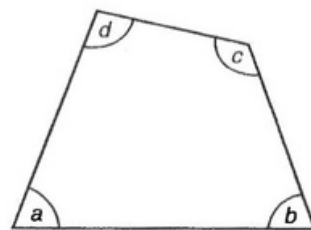
This question paper consists of 15 printed pages and 1 blank page.

INFORMATION AND FORMULAE

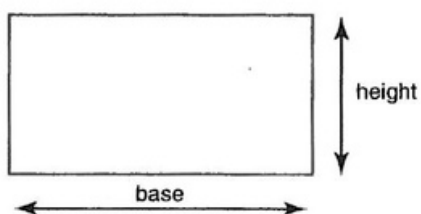
MENSURATION



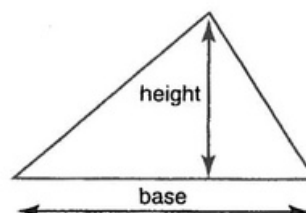
Angle sum of triangle
 $a + b + c = 180^\circ$



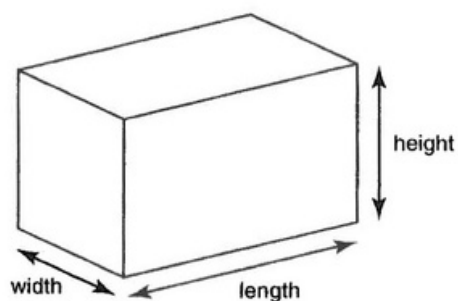
Angle sum of quadrilateral
 $a + b + c + d = 360^\circ$



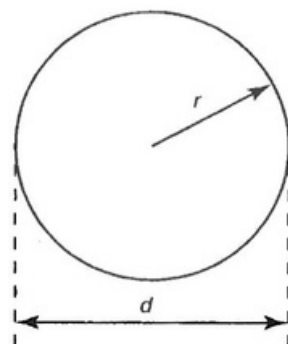
Area of rectangle = base $\times$ height



Area of triangle = $\frac{\text{base} \times \text{height}}{2}$



Volume of cuboid = length $\times$ width $\times$ height



Circumference of circle = $2\pi r$ or πd
Area of circle = πr^2

NUMBER

Standard form is $a \times 10^n$ where $1 \leq a < 10$ and n is an integer.

1. (a) Write the missing values in the sequence

5, 8, _____, 14, 17, _____ [2]

- (b) State a prime number in the sequence above.

Answer: _____ [1]

2. Showing all working, evaluate

$$20 \div 4 \times 3 - 2^3$$

Answer: _____ [3]

3. If $p = -2$ and $q = 3$, find the value of $p^2 - 5q$.

Answer: _____ [3]

4. 20,000,000,000 ants live in a large colony.

- (a) Write this number in standard form.

Answer: _____ [1]

The total weight of the ant colony is 1.2×10^5 lbs.

- (b) Write this weight as an ordinary number.

Answer: _____ lbs [1]

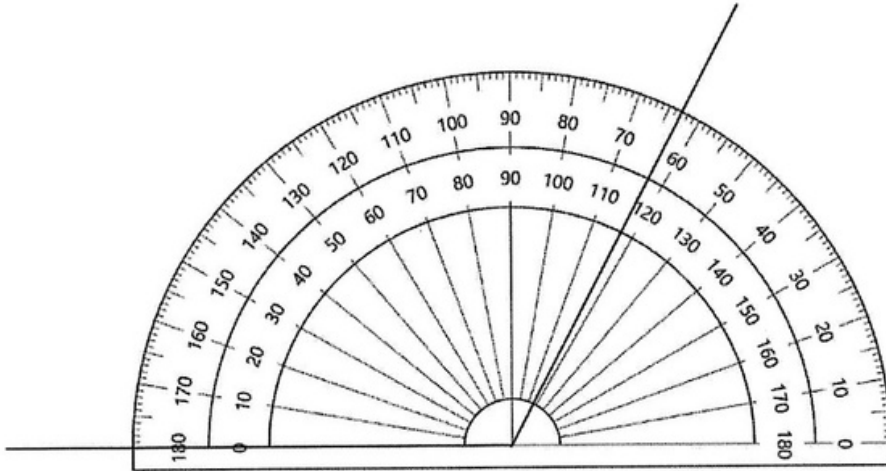
5. Convert each quantity to the unit indicated.

(a) $4.7 \text{ g} =$ _____ mg. [1]

(b) $6.9 \text{ m} =$ _____ cm. [1]

(c) $80,000 \text{ cm} =$ _____ km. [1]

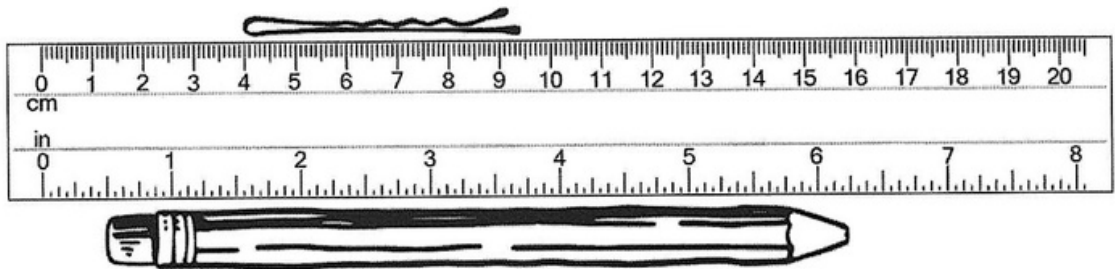
6. (a)



Write down the size of the angle shown in the diagram above.

Answer: _____° [1]

(b)



From the diagram above, find the length of

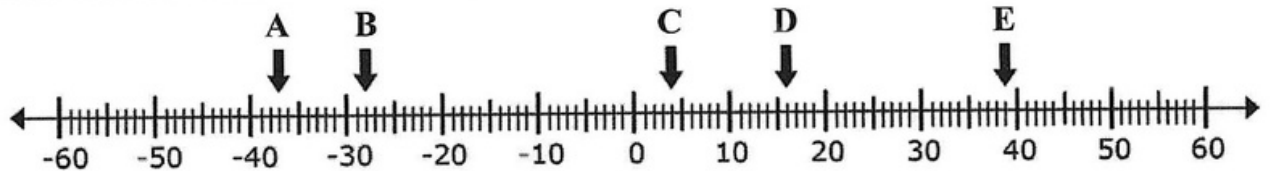
(i) the hairpin, in centimetres,

Answer: _____ cm [1]

(ii) the pencil, in inches.

Answer: _____ in [1]

7.



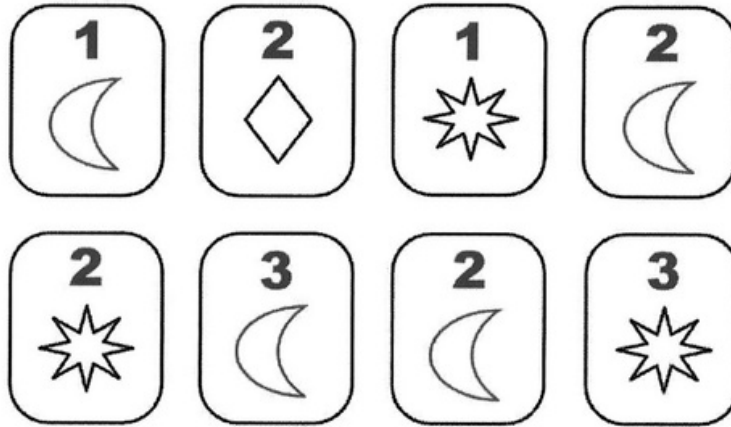
Using the number line above, find the value of

(a) **E**, Answer: _____ [1]

(b) **B - C**, Answer: _____ [2]

(c) **A + D**, Answer: _____ [2]

8. A set of cards is shown below.



If a single card is chosen at random from the set of cards shown, find the probability that it

- (a) has ,

Answer: _____ [1]

- (b) has **4**,

Answer: _____ [1]

- (c) does **not** have ,

Answer: _____ [1]

- (d) has both **2** and ,

Answer: _____ [1]

- (e) has either **1** or .

Answer: _____ [1]

9. Arrange the following values in ascending order.

$\frac{5}{9}$, 55%, $\tan 29^\circ$, 0.5

Answer: _____ [2]

10. 7 yards of fabric was purchased.

$3\frac{1}{4}$ yards of fabric is needed to cover a chair.

Find the amount of fabric left after **two** chairs are covered.

Answer: _____ yd [2]

11. Famous Punch consists of a mix of orange juice, pineapple juice and guava nectar in the ratio 3:4:2.

(a) Calculate the number of gallons of guava nectar needed to mix 36 gallons of Famous Punch.

Answer: _____ gal [2]

A batch of Famous Punch used 20 gallons of pineapple juice.

(b) Find the amount of punch that was made.

Answer: _____ gal [2]

12. (a) 6 concrete blocks weigh 228 lb.

Find the weight of 11 similar blocks.

Answer: _____ lb [2]

- (b) It takes eight workers seven days to build a wall.

At the same rate, find how many days it would take four workers to build a similar wall.

Answer: _____ days [2]

13. The weights of eleven cheerleaders are listed below in kilograms.

62, 61, 56, 64, 54, 55, 53, 62, 59, 60, 58

- (a) State the

- (i) mode,

Answer: _____ kg [1]

- (ii) range.

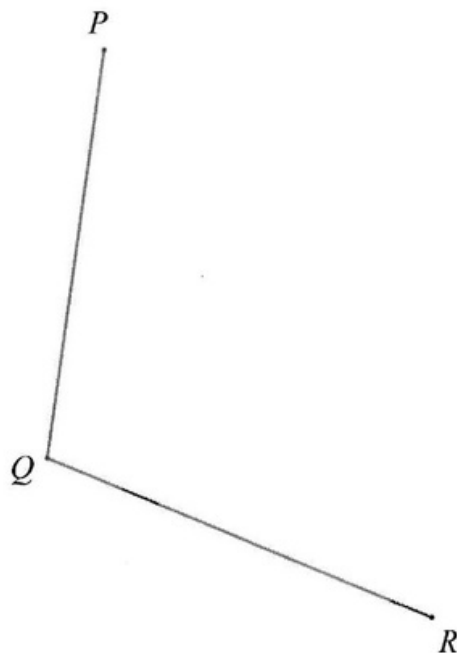
Answer: _____ kg [1]

The heaviest cheerleader is benched due to injury.

- (b) Find the mean of the weights of the remaining cheerleaders.

Answer: _____ kg [2]

14.



- (a) Using a ruler and compasses only, bisect
- (i) $\angle Q$, [3]
- (ii) QR . [3]
- (b) (i) Mark the point X where the bisectors above intersect. [1]
- (ii) Measure and write down the length of QX in cm.

Answer: _____ cm [1]

15. A Talent Show which lasted $2\frac{1}{4}$ hours ended at 8:10 p.m.

(a) Find the time the Talent Show started.

Answer: _____ p.m. [2]

It took a family 55 minutes to get home after the Talent Show ended.

(b) Give the time they arrived home.

Answer: _____ p.m. [1]

A Music Gala started at 6:35 p.m. and ended at 8:10 p.m.

(c) Find how long the Music Gala lasted.

Answer: _____ [2]

(d) Write 8:10 p.m. using the 24-hour clock.

Answer: _____ [1]

16. In 2004 the population of a town was 84,000.

By 2014 the population had increased by 14%.

(a) Work out the population of the town in 2014.

Answer: _____ [2]

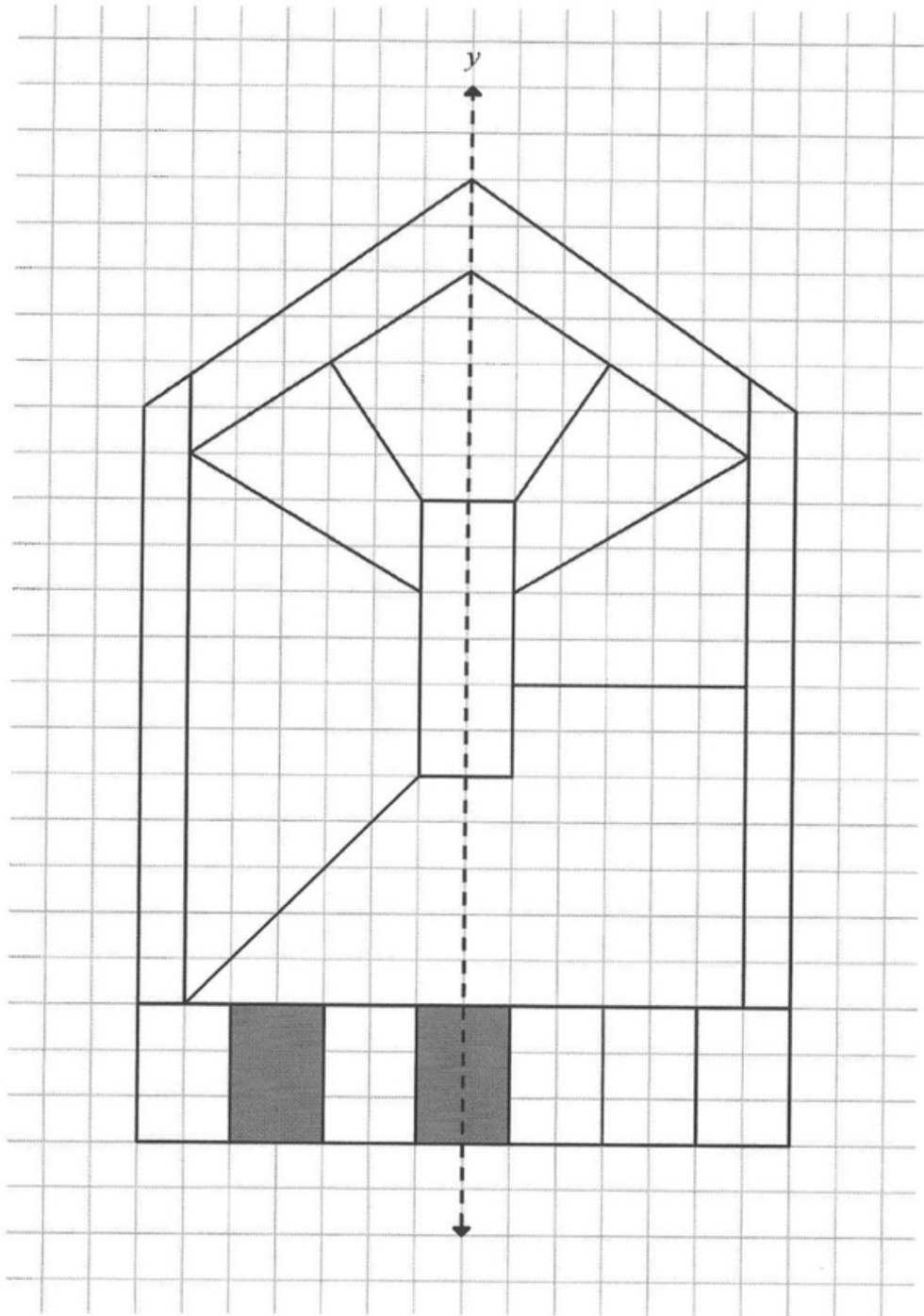
In 2014 the population of another town was 97,000.

By 2019 the population had dropped to 92,150.

(b) Determine the percentage decrease in the population.

Answer: _____ % [3]

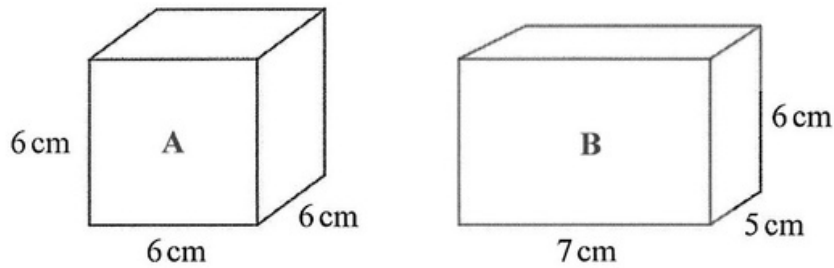
17.



Complete the diagram above in such a way that it is symmetric about line y .

[3]

18. Container **A** is a cube and container **B** is a cuboid.

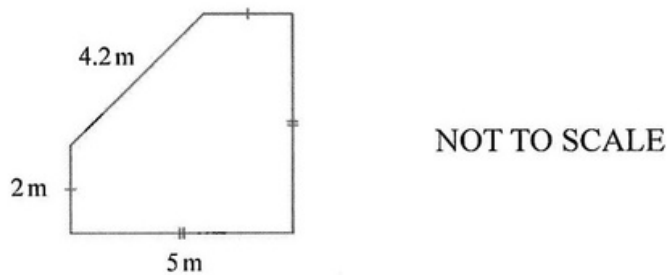


Find which container will hold the most water when full.

Show working to support your answer.

Answer: _____ [3]

19. The diagram below shows the plans for a school playground.



- (a) Find the length of fencing needed to enclose the playground.

Answer: _____ m [2]

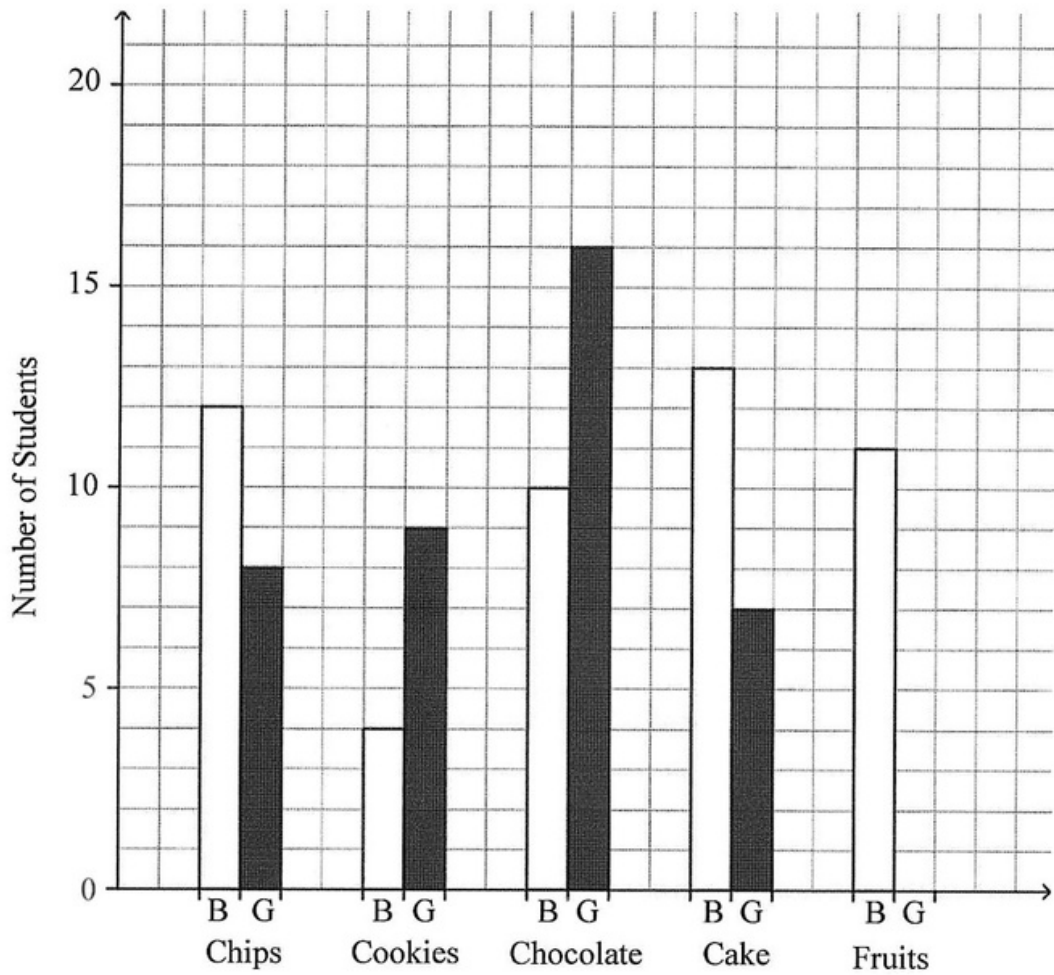
The cost of fencing is \$46.50 per meter.

- (b) Calculate the total cost of fencing the playground.

Answer: \$ _____ [2]

20. In a survey, 50 boys and 50 girls were asked which is their favourite snack.

The results of the survey are shown in the bar chart below.



- (a) Complete the chart by drawing the bar representing the number of girls who liked fruits. [2]

- (b) State the number of boys that liked chocolate.

Answer: _____ [1]

- (c) Determine the favourite snack of the boys.

Answer: _____ [1]

- (d) Calculate the difference between the number of girls and boys that favour cookies.

Answer: _____ [2]

21. Simplify the following

(a) $4x + 5y - 2x + 7y + 7x$

Answer: _____ [2]

(b) $-4(6m - 3n + 1)$

Answer: _____ [3]

(c) $6m^2n^4 \times 7m^3n^{-3}$

Answer: _____ [3]

(d) $36x^5y^3 \div 9x^2y$

Answer: _____ [3]

22. Solve

(a) $5x + 6 = 14$

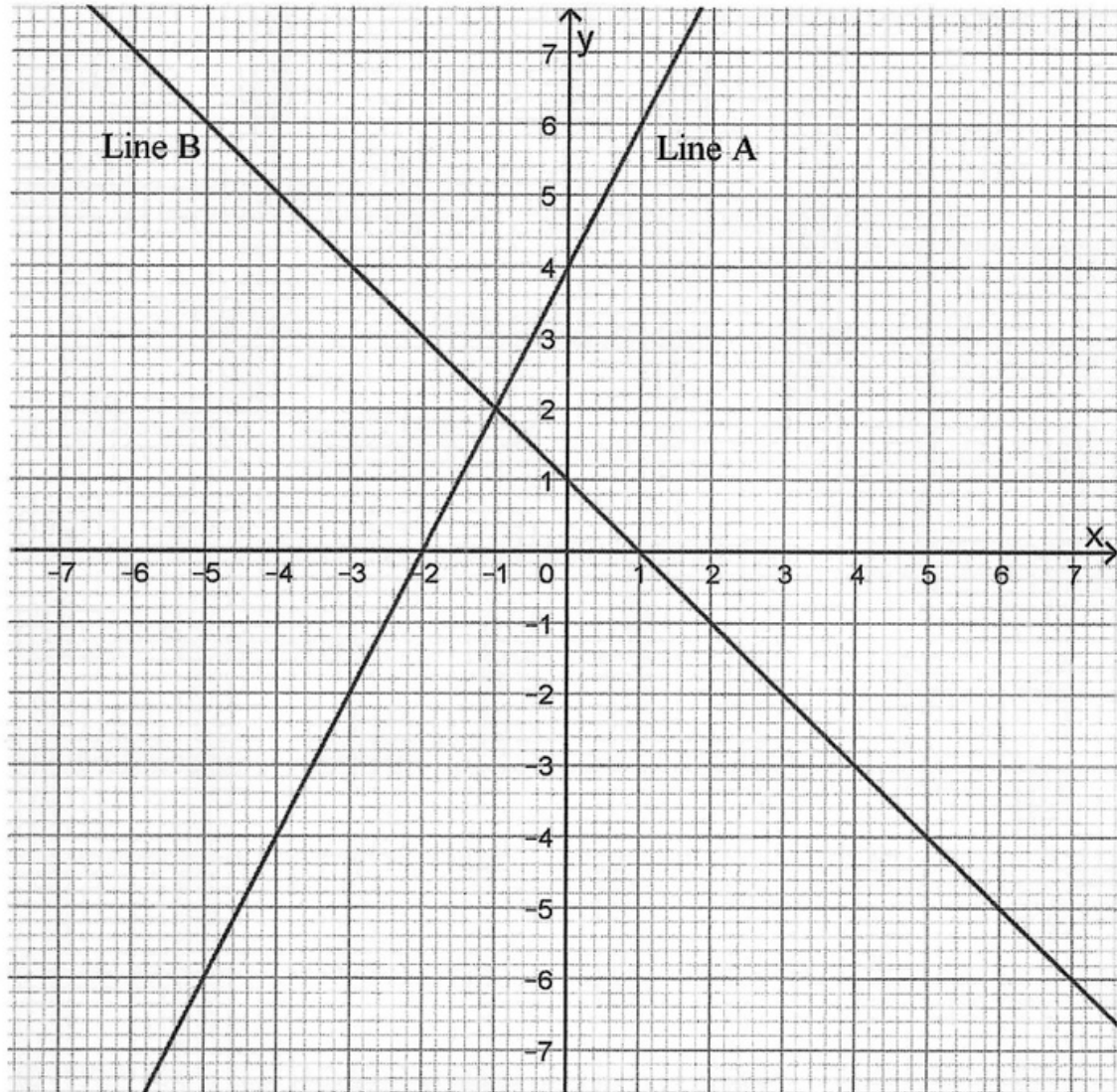
Answer: _____ [2]

(b) $\frac{x}{3} = 3\frac{1}{4}$

Answer: _____ [2]

[Turn over

23.



The equation of a straight line can be written in the form $y = mx + c$,
where m is the gradient and c is the y -intercept.

(a) Use the graph to complete the information for **Line A**.

(i) gradient = _____ [1]

(ii) y -intercept = _____ [1]

(iii) Equation of **Line A** is _____ [1]

The equation of **Line B** is $y = -x + 1$.

(b) Complete the information for **Line B**.

(i) gradient = _____ [1]

(ii) y -intercept = _____ [1]

(c) Write the coordinates of the point where **Line A** and **Line B** intersect. (_____ , _____) [1]

(d) On the same axes, draw the graph of $y = -5$. [1]

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