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MATHEMATICS

PAPER 1 (CORE/EXTENDED) 3815/1

Thursday **18 MAY 2023** 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.

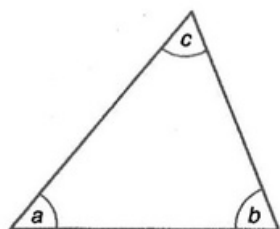
The mark for each question, or part question, is shown in brackets [].

The total number of marks for this paper is 100.

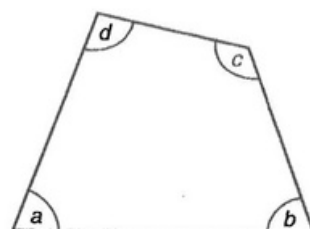


This question paper consists of 16 printed pages.

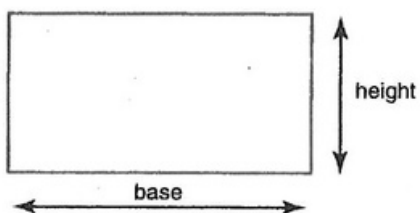
INFORMATION AND FORMULAE



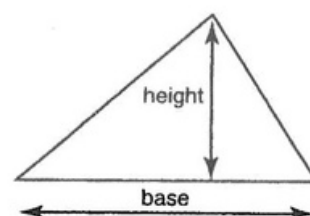
Angle sum of triangle
 $a + b + c = 180^\circ$



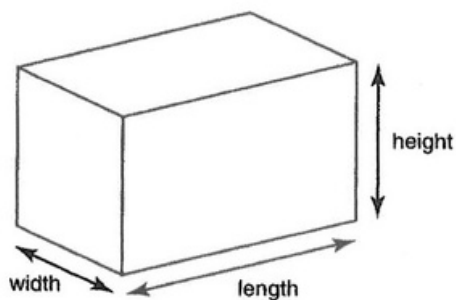
Angle sum of quadrilateral
 $a + b + c + d = 360^\circ$



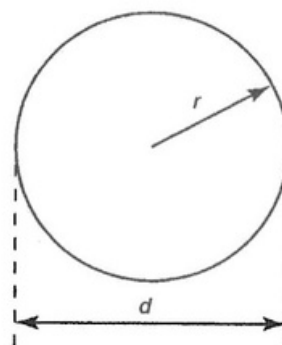
Area of rectangle = base $\times$ height



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. Write down the next two terms in the sequence.

2, 9, 17, 26, 36, _____, _____.

[2]

2. Kevin can buy 8 erasers for \$2.16.

Work out the cost of 10 of these erasers.

Answer: \$ _____ [2]

3. (a) Find the exact value of $\frac{3,675 \times 15}{16}$.

Answer: _____ [1]

- (b) Write the answer for part (a) correct to

(i) the nearest 100, Answer: _____ [1]

(ii) 3 decimal places, Answer: _____ [1]

(iii) 3 significant figures. Answer: _____ [1]

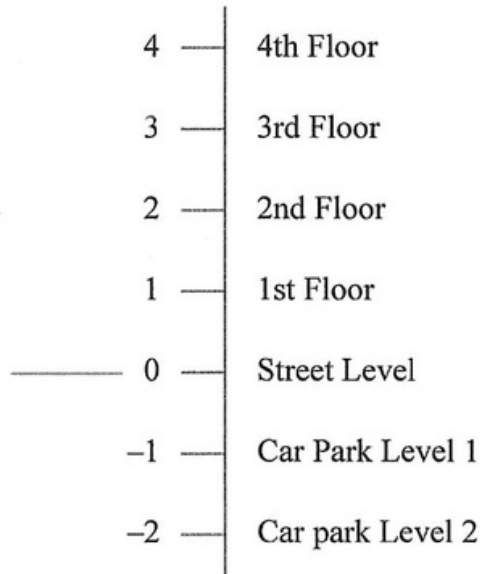
4. Convert the following to the units indicated.

(a) 320 g = _____ kg [1]

(b) 4.2 m = _____ cm [1]

(c) 0.8 l = _____ ml [1]

5.



The diagram shows the elevator service of a building.

Jade parks at Car Park Level 2 and takes the elevator up five floors to go to a meeting. She then takes the elevator down two floors to have lunch.

Write down which floor Jade has lunch on.

Answer: _____ [1]

6. Mr. Jones starts watching a new television series.

One evening he watches the series from 7:19 p.m. until 12:05 a.m.

(a) Calculate how long he spends watching the series that evening.

Answer: _____ [2]

The next day he starts watching one episode of the series at 8:15 a.m.
The episode lasts 48 minutes.

(b) Calculate the time he finishes the episode.

Answer: _____ [2]

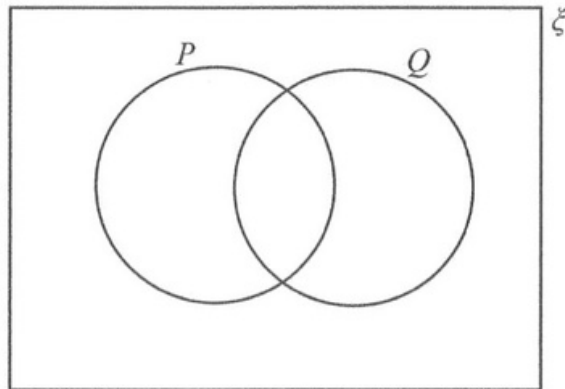
(c) Write 7:19 p.m. using the 24-hour clock.

Answer: _____ [1]



7. $\xi = \{x \text{ is an integer: } 20 \leq x < 30\}$
 $P = \{\text{multiples of 3}\}$
 $Q = \{\text{even numbers}\}$

(a)



Complete the Venn-diagram to show the above information.

[4]

- (b) List the set P .

Answer: {_____} [1]

- (c) Find $n(Q)$.

Answer: _____ [1]

8. Ashley wants to buy a video game which costs \$39.95.

She saved:

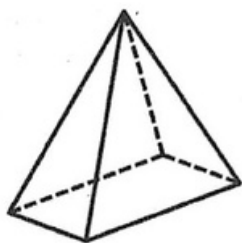
3 \$5 notes,
12 \$1 notes,
23 25¢ coins.

Determine if Ashley has enough money to buy the video game.
Show working to support your answer.

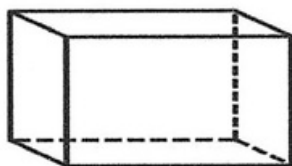
Answer: _____ [3]

[Turn over]

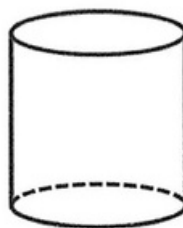
9. Write the name of each of the solids.



(a) _____



(b) _____



(c) _____



(d) _____ [4]

10. There are 36 jellybeans in a jar.

14 are red,
9 are blue,
6 are yellow,
the rest are green.

Ashley takes a jellybean at random from the jar.

Calculate the probability that it will be

- (a) blue,

Answer: _____ [1]

- (b) purple,

Answer: _____ [1]

- (c) green,

Answer: _____ [2]

- (d) yellow or red.

Answer: _____ [1]



11. Thrifty's Store sells a pack of 16 rolls of toilet paper for \$5.12.
Cheapo's Store sells a pack of 18 rolls of toilet paper for \$6.30.

Determine which store has the better deal on the toilet rolls.

Show working to support your answer.

Answer: _____ [3]

12. In class 10B, the ratio of girls to boys is 4:1.
There are 30 students in class 10B.

(a) Work out the number of girls in class 10B.

Answer: _____ [2]

The ratio of girls to boys in class 10C is 3:2.
There are 14 boys in the class.

(b) (i) Work out the number of girls in class 10C.

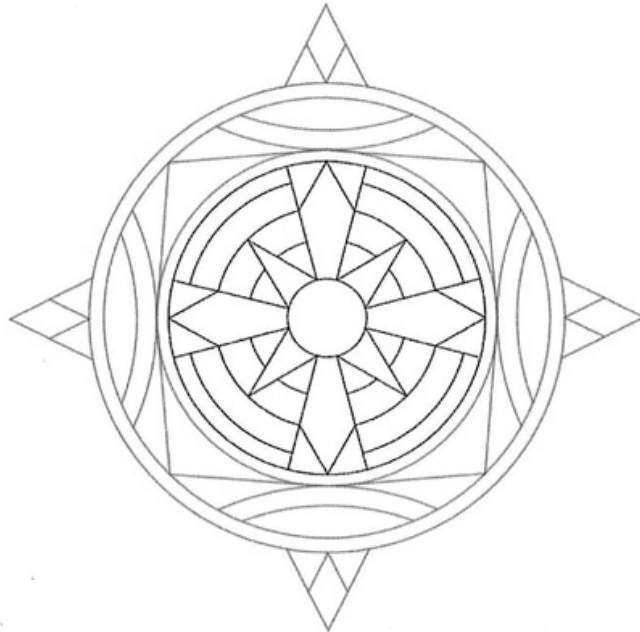
Answer: _____ [2]

(ii) Write down, in simplest form, the ratio of girls to the total number of students in class 10C.

Answer: _____ [1]

[Turn over

13. The shape below is a design from a Junkanoo costume.



- (a) Draw the lines of symmetry. [3]
- (b) State the order of rotational symmetry.

Answer: _____ [1]

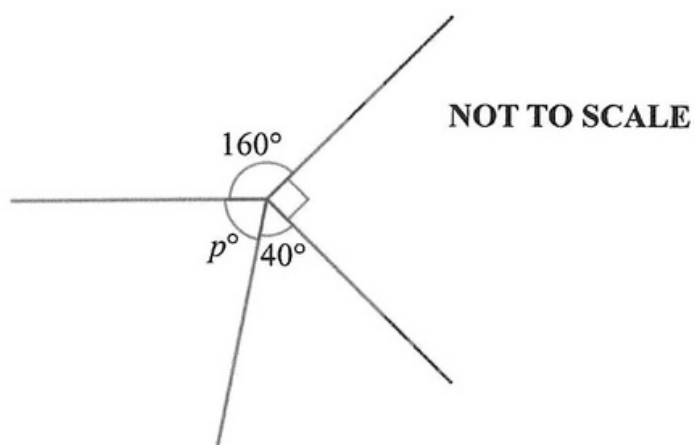
14. There are two traffic lights at different intersections.
The first light turns green every 60 seconds.
The second light turns green every 45 seconds.
At a certain point, both lights turn green at the same time.
Find how many seconds it takes for both lights to turn green at the same time again.
Show working to support your answer.

Answer: _____ [3]



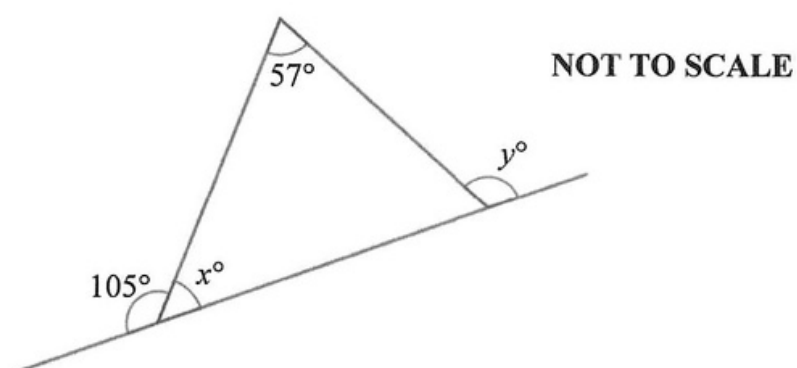
15. Find the lettered angles in the diagrams below.

(a)



$p = \underline{\hspace{2cm}}^\circ$ [1]

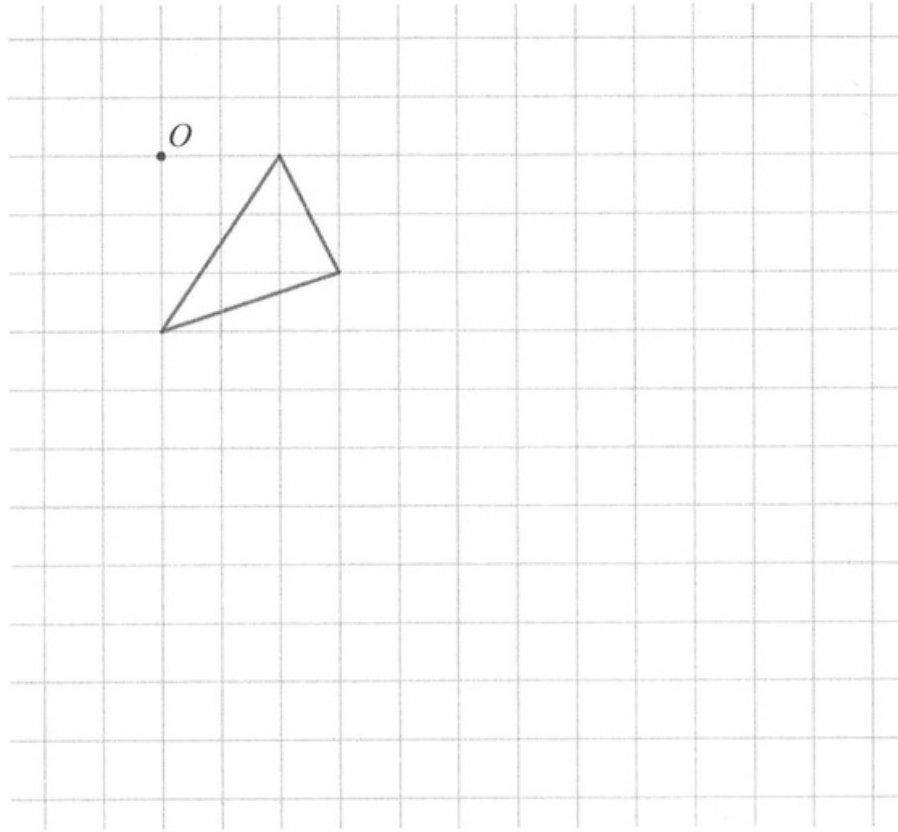
(b)



$x = \underline{\hspace{2cm}}^\circ$ [1]

$y = \underline{\hspace{2cm}}^\circ$ [2]

16.



Draw an enlargement of the figure above with centre O , using a scale factor of 3.

[3]

17. Solve the following equations.

(a) $3a + 4a - 5a = 15$

Answer: _____ [2]

(b) $\frac{5}{4}n + 6 = 41$

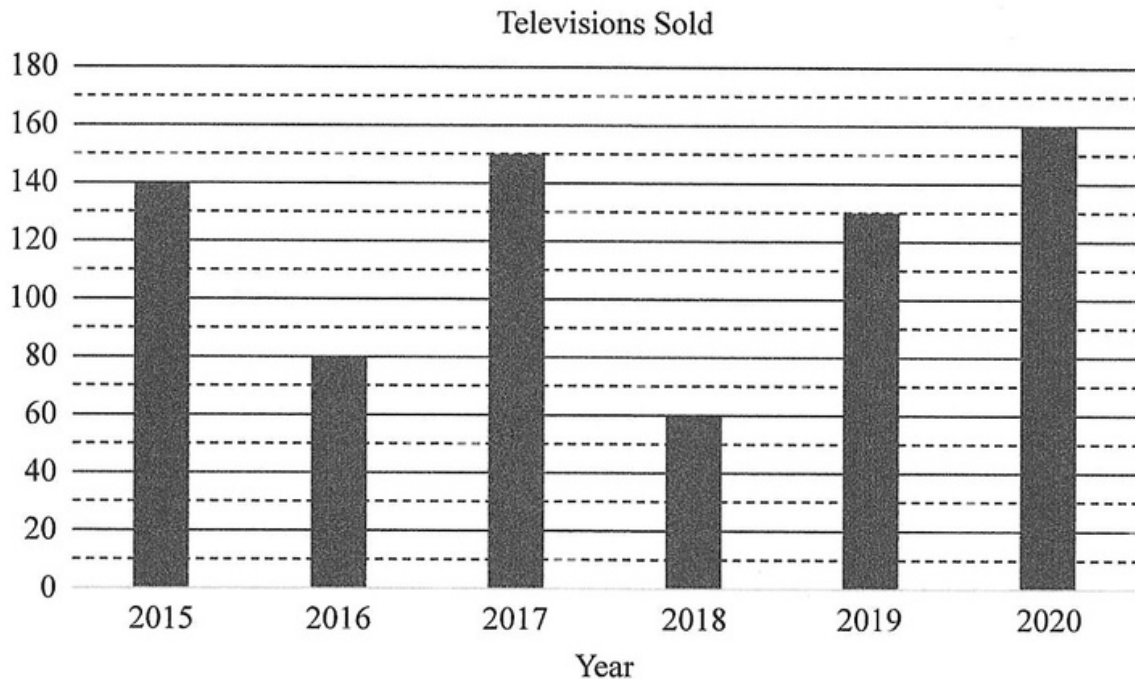
Answer: _____ [2]

(c) $3(x - 9) = 62$

Answer: _____ [3]



18. The chart below shows the sales of television sets at a local appliance store over a period of six years.



(a) Write down the

(i) number of televisions sold in 2017,

Answer: _____ [1]

(ii) year in which the most televisions were sold,

Answer: _____ [1]

(iii) year(s) where less than 100 televisions were sold.

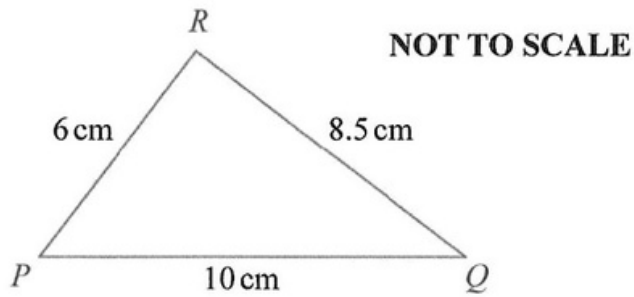
Answer: _____ [1]

(b) Find the difference between the number of televisions sold in 2019 and 2016.

Answer: _____ [2]

[Turn over

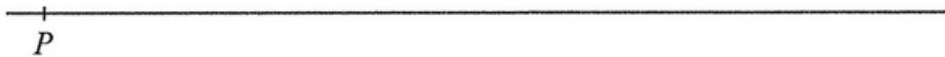
19. Below is a sketch of triangle PQR .



- (a) Using a ruler and compasses, construct triangle PQR on the line below.

[4]

Do not erase construction lines and/or arcs.



- (b) Using the triangle constructed in (a), measure and write down the size of angle PRQ .

Answer: _____ [1]



20. The advertisement below shows the weekly special at KS Techtronic's.

<u>Weekly Special</u> 10-inch Tablet – \$229.75 Headphones – \$49.50 *Purchase both and receive a 4% discount.*
--

A customer purchases both items to receive the discount.
Calculate the amount the customer pays.

Answer: \$ _____ [3]

21. Simplify:

(a) $3x^3 - 5x^2 + x^3 + 8x^2$

Answer: _____ [2]

(b) $\frac{3x}{4} + \frac{x}{5} + \frac{1}{2}$

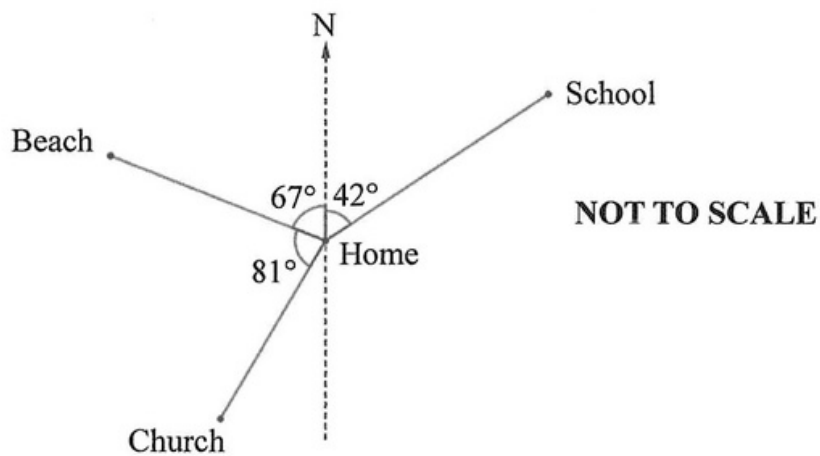
Answer: _____ [3]

(c) $\frac{9ab}{2} \div \frac{3a^2b}{7}$

Answer: _____ [3]

[Turn over]

22. The diagram below shows the direction of three locations from Erin's home.



Find the bearing of

- (a) school from home,

Answer: _____° [1]

- (b) church from home,

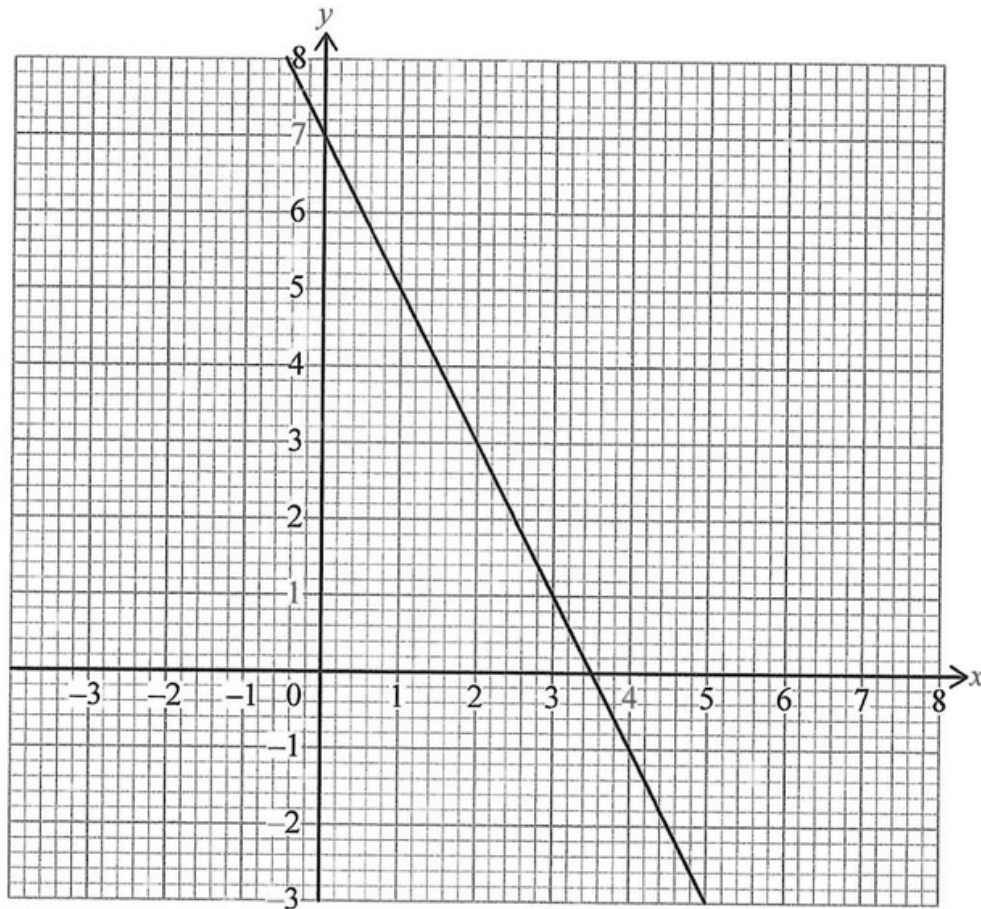
Answer: _____° [2]

- (c) home from school.

Answer: _____° [3]



23.



- (a) Write down the y-intercept of the line.

Answer: _____ [1]

- (b) Find the gradient of the line.

Answer: _____ [2]

- (c) Draw the line $y = 5$.

[1]

- (d) Write down the coordinates where the lines intersect.

Answer: _____ [1]

24. A car is listed at a cash price of \$18,000.

A hire purchase plan includes:

- a 20% down payment on the cash price
- *monthly* payments of \$675 for *two years*.

Calculate the total hire purchase cost of the car.

Answer: \$ _____ [4]

