Ujian Akhir Sesi Akademik (UASA)

Time: 2 hours

Marks 100

Section A [20 *marks*]

Instruction: *Answer* **all** *questions.*

1 Find the value of the following arithmetic operation.

$4 + 32 \div 4 - (-5)$

A 17
B 14
C 9
D 7

1.2 Understanding | Low

2 Compare and arrange the decimals below in descending order.

2.46, 2.59, 0.27, –1.38, –1.16

A –1.38, –1.16, 0.27, 2.46, 2.59
B –1.16, –1.38, 0.27, 2.46, 2.59
C 2.59, 2.46, 0.27, –1.16, –1.38
D 2.59, 2.46, 0.27, –1.38, –1.16

1.4 Remembering | Low

3 Tafik has 96 blue pens, 120 red pens and 156 black pens. He wants to give an equal number of pens of each colour to his students. How many students receive the pens if there are no pens left out?

A 3
B 12
C 16
D 24

2.1 Evaluating | High

4 Given the area of a square is 36 cm^2. What is the perimeter, in cm, of the square?

A 6
B 9
C 24
D 36

3.1 Applying | Medium

5 Express the following ratio in its simplest form.

2.4 m : 56 cm

A 300 : 7
B 30 : 7
C 3 : 70
D 3 : 7

4.1 Understanding | Low

6 The difference in height between Helmi and Rina is 36 cm. The ratio of Helmi's height to Rina's height is 9 : 7. If Martin's height is 168 cm, find the ratio of Rina's height to Martin's height.

A 1 : 6
B 3 : 4
C 3 : 14
D 27 : 28

4.4 Evaluating | High

7 48% of the students in a class are female. Find the ratio of the number of male students to the number of female students in the class.

A 12 : 25
B 12 : 13
C 13 : 25
D 13 : 12

4.5 Applying | High

8 Which of the following pairs are like terms?

A $3x^2$, $5x$
B $-2ab$, $2b$
C $0.2st^2$, $6s^2t$
D $\frac{m^2}{3}$, $-0.5\ m^2$

5.1 Remembering | Low

9 Simplify the following algebraic expression.

$$3xy^2 \div 4x^2y^3z \times 6y^2z^2$$

A $\frac{9yz}{2x}$ **C** $\frac{2x^3y^3}{z}$

B $\frac{1}{8xy^3z^3}$ **D** $\frac{x}{8y^3z}$

5.1 Applying | Medium

10 Given $36 = 3x + 12$, find the value of x.

A 2
B 4
C 6
D 8

6.1 Remembering | Low

11 Hafi bought a few pens in a bookshop. The price of each pen is RM3 and he has a voucher worth RM5. If he has RM15, what is the maximum number of pens that he can buy?

A 4
B 5
C 6
D 7

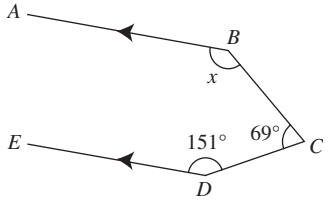
7.2 Evaluating | Medium

12 What is the supplementary angle for 70°?

A 20°
B 110°
C 200°
D 290°

8.1 Remembering | Low

13 In the following diagram, *AB* and *ED* are parallel lines.



What is the value of x?

A 130
B 140
C 142
D 149

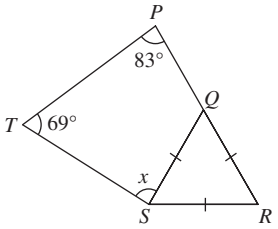
8.3 Analysing | High

14 Find the number of diagonals of an octagon.

A 16
B 18
C 20
D 24

9.1 Understanding | Low

15 In the following diagram, *PRST* is a quadrilateral and *QRS* is an equilateral triangle.

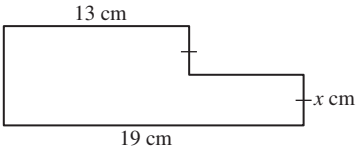


What is the value of x?

A 74°
B 78°
C 82°
D 88°

9.3 Understanding | Medium

16 A piece of wire of length 54 cm is used to form a shape as shown in the following diagram.



What is the value of x?

A 2
B 3
C 4
D 6

10.1 Analysing | Medium

17 Given that the perimeter of a square is 24 cm. Calculate the area, in cm^2, of the square.

A 25 **C** 36
B 30 **D** 49

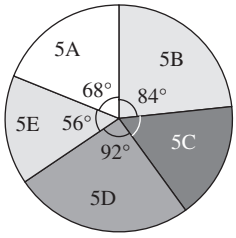
10.3 Applying | Low

18 Given set P = {factors of 12} and set Q = {1, 2, 3, x, 6, 12}. If $P = Q$, what is the value of x?

A 3 **C** 6
B 4 **D** 8

11.1 Remembering | Low

19 The following pie chart shows the number of students in each form 5 class in a school.

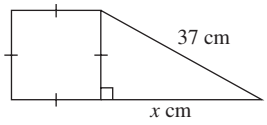


If there are 180 students in form 5 classes in the school, how many students are there in class 5C?

A 30 **C** 40
B 35 **D** 42

12.1 Remembering | Low

20 The following diagram shows a square and a right-angled triangle.



If the area of the square is 144 cm^2, what is the value of x?

A 24
B 30
C 32
D 35

13.1 Analysing | Medium

Section B [20 *marks*]

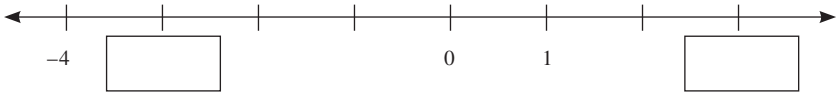
Instruction*: Answer* **all** *questions.*

1 (a) Fill in the blanks in the following number line using the numbers below.

–3	–2	–1.5	1.5	2	2.5	3

1.1 Understanding | Low [2 *marks*]

Answer:



(b) Complete the following table using the answer options below.

$-\frac{2x}{3}$	$-\frac{2xy}{3}$	x	$-\frac{2}{3}$

5.1 Understanding | Low [2 *marks*]

Answer:

Algebraic term	Coefficient	Variable
$-\frac{2xy^2}{3}$		y
	$-\frac{2}{3}y^2$	

2 (a) Mark (✓) for the linear equation with one variable and (✗) if it is not.

6.1 Understanding | Low [2 *marks*]

Answer:

(i)	$\frac{2}{p} + 3 = 5p$	
(ii)	$\frac{y}{5} + 6 = 4 - 3y$	

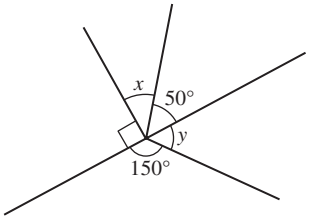
(b) State whether each of the following linear equations in two variables given for each of the situations below is TRUE or FALSE.

6.2 Analysing | Low [2 *marks*]

Answer:

	Situation	Linear equation	TRUE or FALSE
(i)	The perimeter of a rectangle is 32 cm.	$x + y = 32$	
(ii)	Alan bought a gel pen and paid with a RM50 note while Bonnie bought a book and paid with a RM100 note. Both of them received the same amount of balance.	$y - x = 50$	

3 (a) Match each of the following with the correct angle based on the diagram below.



8.1 Understanding | Low [2 *marks*]

Answer:

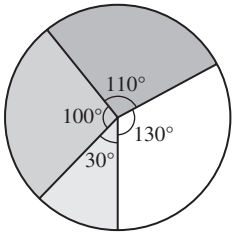
x	30°
	40°
$x + y$	60°
	70°

(b) Mark (✓) for the data that is represented ethically and (✗) for the data that is not represented ethically.

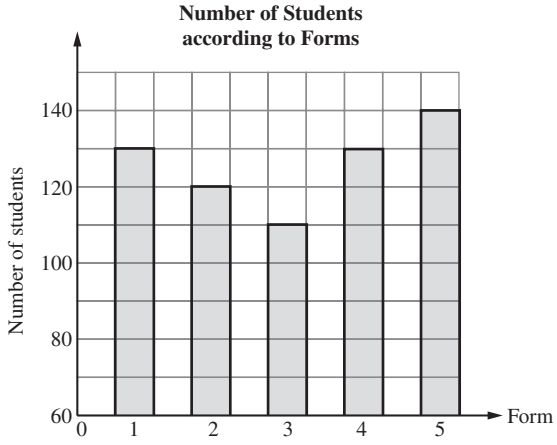
12.1 Understanding | Medium [2 *marks*]

Answer:

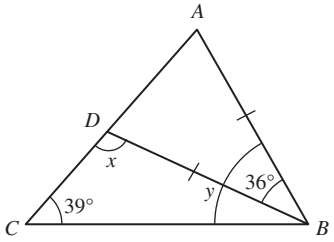
(i)



(ii)



4 (a) In the following diagram, *ABD* is an isosceles triangle.



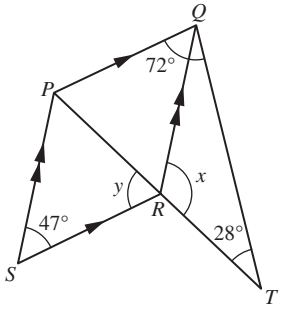
Circle the correct angles.

9.2 Applying | Medium [2 *marks*]

Answer:

x =	69°	72°	108°
y =	33°	69°	72°

(b) The following diagram shows a parallelogram *PQRS* and a triangle *QTR*.



Underline the correct values of x and y.

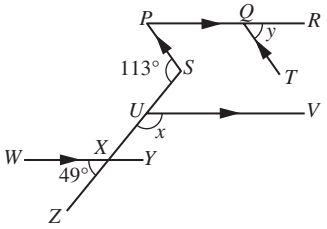
9.2 Applying | Medium [2 *marks*]

Answer:

x = (80°, 127°)

y = (53°, 55°)

5 (a) In the following diagram *SUXZ*, *PQR*, *WXY*, *PS, QT* and *UV* are straight lines.



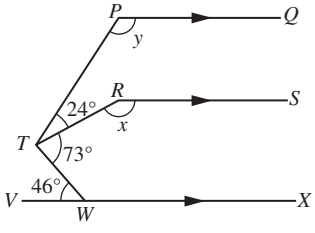
Circle the correct angles.

8.3 Applying | High [2 *marks*]

Answer:

x =	49°	113°	131°	141°
y =	57°	64°	68°	70°

(b) In the following diagram, *PQ*, *RS* and *VWX* are straight lines.



State whether each of the following statements is TRUE or FALSE.

8.3 Evaluating | High [2 *marks*]

Answer:

	Statement	TRUE or FALSE
(i)	$x + y = 272°$	
(ii)	$y = x - 24°$	

Section C [60 *marks*]

Instruction*: Answer* **all** *questions.*

1 (a) By using laws of arithmetic operations, calculate the following using efficient computations.

1.2 Understanding | Low [2 *marks*]

Answer:

$8 \times 7 \times 5 =$

(b) Given the volume of a cube is 512 cm^3. Calculate

(i) the total length, in cm, of all the edges of the cube,

3.2 Applying | Low [2 *marks*]

(ii) the total area, in cm^2, of all the surfaces of the cube.

3.1 Applying | Low [2 *marks*]

Answer:

(i)

(ii)

(c) (i) Express 72 and 90 as a product of its prime factors.

2.1 Applying | Medium [2 *marks*]

Answer:

(ii) Hence, find the highest common factor (HCF) and the lowest common multiple (LCM) of 72 and 90.

2.2 Applying | Medium [2 *marks*]

Answer:

2 (a) Fikri goes to the supermarket to buy his favourite milk. He finds that the milk is sold in different volumes and prices are as shown in the diagram below.

300 m*l* RM2.80 | 800 m*l* RM6.20 | 1.5 *l* RM12.00

Which milk offers the most affordable price?

4.2 Evaluating | Low [4 *marks*]

Answer:

(b) Given $p : q = 4 : 3$ and $p : r = 6 : 5$. Find $p : q : r$.

4.1 Understanding | Medium [2 *marks*]

Answer:

(c) The ratio of the number of red marbles to the number of yellow marbles to the number of blue marbles in a box is 6 : 9 : 8. The difference between the number of red marbles and yellow marbles is 9. After adding 5 yellow marbles and a number of blue marbles into the box, the new ratio of the number of yellow marbles to the number of blue marbles is 8 : 7. How many blue marbles are added?

4.4 Analysing | High [4 *marks*]

Answer:

3 (a) Simplify each of the following.

(i) $-3xy \times 4xy^2z$

5.2 Understanding | Low [1 *mark*]

(ii) $\dfrac{-2pq^2 \times 6qr^2}{8pr^3}$

5.2 Understanding | Low [2 *marks*]

Answer:

(i)

(ii)

(b) Given that the width of a rectangle is x cm and the length is 1 cm longer than twice its width.

(i) Express the perimeter of the rectangle in terms of x.

6.1 Applying | Low [2 *marks*]

(ii) If the perimeter of the rectangle is 26 cm, find the value of x.

6.1 Applying | Low [2 *marks*]

Answer:

(i)

(ii)

(c) Given that p and q are integers. The sum of the two integers is 11 and the difference between the two integers is 3 such that $p > q$. Find the value of q.

6.3 Analysing | High [3 *marks*]

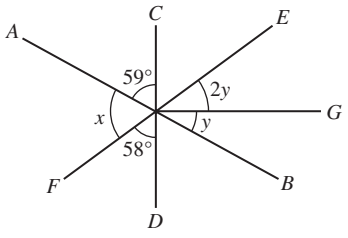
Answer:

4 (a) Given x is an integer. If $5 - 2x \leqslant 9$ and $\frac{x-3}{3} < 7 - x$, find the possible values of x.

7.2 Understanding | Medium [4 *marks*]

Answer:

(b) In the following diagram, AB, CD and EF are straight lines.

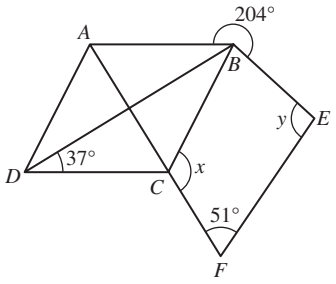


Find the values of x and y.

8.2 Applying | Medium [3 *marks*]

Answer:

(c) In the following diagram, *ABCD* is a rhombus.

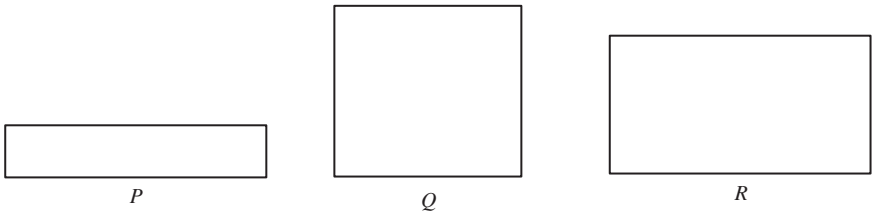


Find the values of x and y.

9.3 Applying | Medium [3 *marks*]

Answer:

5 (a) The diagram below shows three rectangles, *P*, *Q* and *R*.



(i) If rectangles *P*, *Q* and *R* have the same area, which rectangle has the largest perimeter?

10.3 Evaluating | Low [1 *mark*]

(ii) If rectangles *P*, *Q* and *R* have the same perimeter, which rectangle has the largest area?

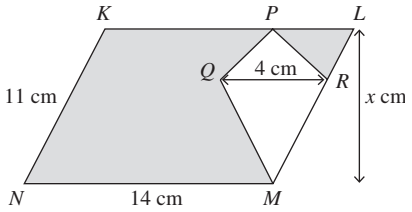
10.3 Evaluating | Low [1 *mark*]

Answer:

(i)

(ii)

(b) The following diagram shows a parallelogram *KLMN* and a kite *PQMR*.



(i) If the area of kite *PQMR* is 16 cm^2, find the value of x.

10.2 Analysing | Low [2 *marks*]

(ii) Find the area, in cm^2, of the shaded region.

10.2 Analysing | Low [2 *marks*]

Answer:

(i)

(ii)

(c) The stem-and-leaf plot below shows the marks of students in an examination.

Marks of Students

Stem	Leaf					
4	7	8				
5	4	5	7	7		
6	2	3	3	8	9	
7	1	2	4	9	9	9
8	0	4	7	7		
9	3	7				

Key: 4 | 7 means 47 marks

(i) How many students took the examination?

12.1 Understanding | Low [1 *mark*]

(ii) Find the marks obtained by most of the students.

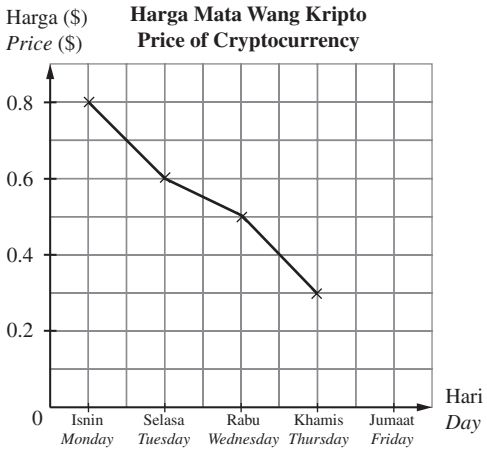
12.1 Understanding | Low [1 *mark*]

Answer:

(i)

(ii)

(d) The following line graph shows the price of cryptocurrency for four days.

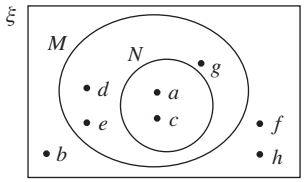


The price of the cryptocurrency decreases \$0.10 on Friday. Find the price of the cryptocurrency on Friday. Hence, state **one** inference based on the line graph above.

12.1 Evaluating | High [2 *marks*]

Answer:

6 (a) The Venn diagram below shows the relationship between sets ξ, M and N.



(i) State the relationship between set M and set N.

11.2 Understanding | Low [1 *mark*]

(ii) Find $n(M)$ and $n(M')$.

11.2 Understanding | Low [2 *marks*]

Answer:

(i)

(ii)

(b) Explain whether the lengths of sides of 9 cm, 40 cm and 41 cm can form a right-angled triangle.

13.1 Applying | Low [2 *marks*]

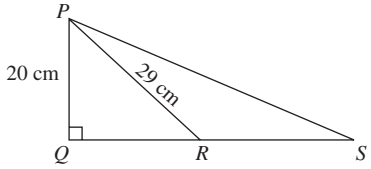
Answer:

(c) A 2.55 m long ladder leans against the wall of height 2.25 m. The distance between the wall and the base of the ladder is 1.3 m. Is the wall vertical, slanting towards or slanting away from the ladder?

13.2 Understanding | Medium [2 *marks*]

Answer:

(d) The following diagram shows two triangles, *PQR* and *PRS*.



If the area of triangle *PQS* is 480 cm^2, find the length, in cm, of *RS*.

13.1 Analysing | High [3 *marks*]

Answer: