

# Summative Assessment (Ujian Akhir Sesi Akademik)

Marks

100

Section

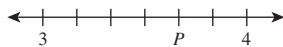
**A**

[20 marks]

**Instruction:** Answer all questions.

Time : 2 hours

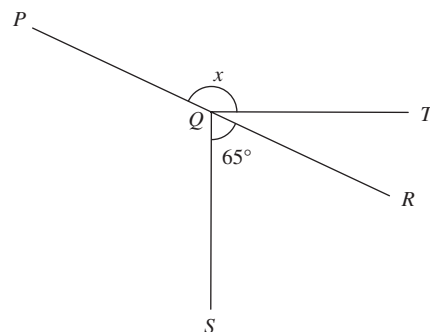
- 1 The diagram below shows a number line.



Find the value of  $P$ .

- A  $\frac{11}{5}$                       C  $\frac{11}{3}$   
 B  $\frac{12}{5}$                       D  $\frac{13}{3}$
- 2 Which of the following numbers has the sum of all its prime factors equal to 12?  
 A 21                      C 35  
 B 28                      D 40
- 3 Given  $p$  is the smallest multiple of 7 that is greater than 100 and  $q$  is the largest multiple of 13 that is less than 150, find the value of  $q - p$ .  
 A 38  
 B 40  
 C 42  
 D 44
- 4 Given that  $\sqrt{4.9} = 2.21$ , find the value of  $\sqrt{49} + \sqrt{490}$ .  
 A 29.1  
 B 77  
 C 92.1  
 D 228
- 5  $\left(1\frac{1}{4}\right)^3 - \left(\frac{3}{8}\right)^2 =$   
 A  $\frac{7}{8}$   
 B  $1\frac{13}{16}$   
 C  $1\frac{29}{32}$   
 D  $1\frac{43}{64}$

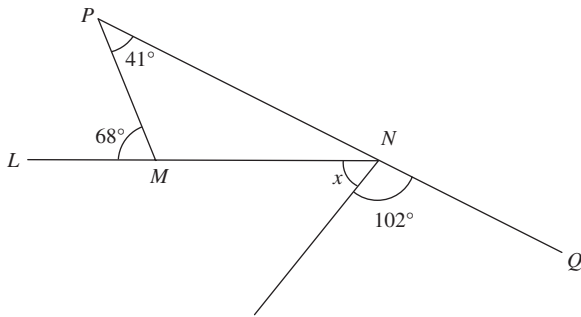
- 6 Given that  $p : q = 8 : 13$  and  $p + q = 147$ , find the value of  $p$ .  
 A 8                      C 28  
 B 14                      D 56
- 7 Which of the following pairs of algebraic terms are like terms?  
 A  $\frac{x}{4}$  and  $-x$   
 B  $-10y$  and  $10k$   
 C  $2m$  and  $-5$   
 D  $8h$  and  $4m$
- 8 Solve the linear equation  $7m - 15 = 3(m + 7)$ .  
 A  $\frac{9}{2}$                       C 9  
 B 5                      D 12
- 9 Find the integer values of  $x$  that satisfy the simultaneous linear inequalities  $7x < 28$  and  $17 > 13 - 2x$ .  
 A  $\{-2, -1, 1, 2, 3\}$       C  $\{-1, 0, 1, 2, 3\}$   
 B  $\{0, 1, 2, 3, 4\}$       D  $\{-1, 0, 1, 2, 3, 4\}$
- 10 In the diagram below,  $PQR$  is a straight line. Given that  $\angle SQR$  and  $\angle RQT$  are complementary angles.



Find the value of  $x$ .

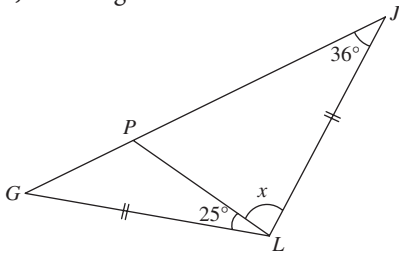
- A  $115^\circ$                       C  $145^\circ$   
 B  $125^\circ$                       D  $155^\circ$

- 11 In the following diagram,  $LMN$  and  $PNQ$  are straight lines.



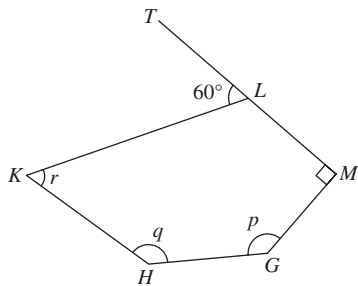
Find the value of  $x$ .

- A  $21^\circ$                       C  $41^\circ$   
 B  $31^\circ$                       D  $51^\circ$
- 12 In the diagram below,  $GJL$  is an isosceles triangle and  $GPJ$  is a straight line.



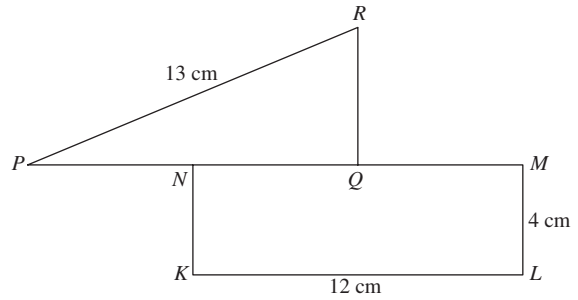
Find the value of  $x$ .

- A  $47^\circ$                       C  $83^\circ$   
 B  $61^\circ$                       D  $97^\circ$
- 13 In the diagram below,  $MLT$  is a straight line.



Find the value of  $p + q + r$ .

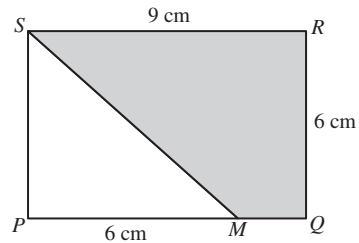
- A  $180^\circ$                       C  $390^\circ$   
 B  $330^\circ$                       D  $420^\circ$
- 14 In the following diagram,  $KLMN$  is a rectangle and  $PNQM$  is a straight line such that  $PN = NQ = QM$ .



Find the perimeter, in cm, of the diagram.

- A 44                              C 56  
 B 50                              D 62

- 15 In the following diagram,  $PQRS$  is a rectangle and  $PMQ$  is a straight line. The area of the shaded region is equal to the area of a square.



Find the length, in cm, of sides of the square.

- A 6  
 B 12  
 C 24  
 D 36

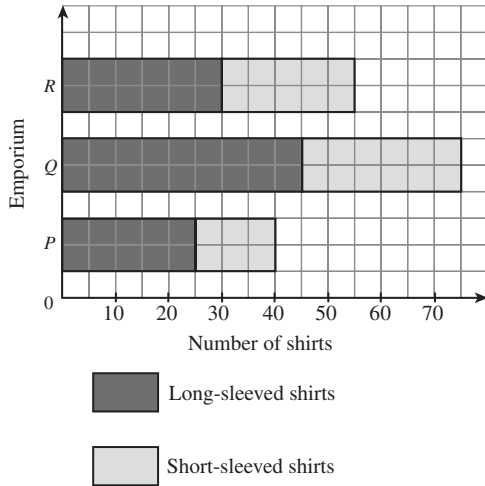
- 16 Which of the following is **not** the equal set for the two sets?

- A  $G = \{\text{factors of } 50\}$   
 $H = \{1, 2, 5, 10, 25, 50\}$   
 B  $M = \{C, I, N, O\}$   
 $N = \{\text{letters in the word ICONIC}\}$   
 C  $P = \{\frac{1}{7}, 0.95, 8, \sqrt{10}\}$   
 $Q = \{\text{rational numbers}\}$   
 D  $T = \{x : 3 < x \leq 17, x \text{ is a prime number}\}$   
 $W = \{5, 7, 11, 13, 17\}$

- 17 Given the universal set  $\xi = \{x : 10 < x < 30, x \text{ is an integer}\}$  and  $P = \{\text{sum of two digits is an even number}\}$ . Determine  $n(P')$ .

- A 8  
 B 9  
 C 10  
 D 11

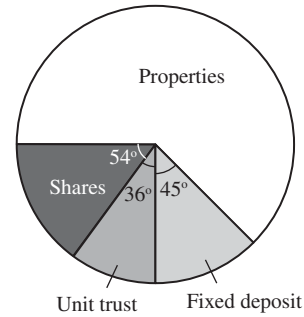
- 18 The bar chart in the diagram below shows the number of shirts sold in three emporiums  $P$ ,  $Q$  and  $R$ .



Which of the following statements is **true** about the sales of shirts?

- A Emporium  $R$  sold 15 pieces of long-sleeved shirts more than emporium  $Q$ .  
 B Emporium  $Q$  sold 20 pieces of long-sleeved shirts more than emporium  $P$ .  
 C Emporium  $P$  and emporium  $R$  sold the same quantity of short-sleeved shirts.  
 D Emporium  $P$  sold the highest quantity of short-sleeved shirts.

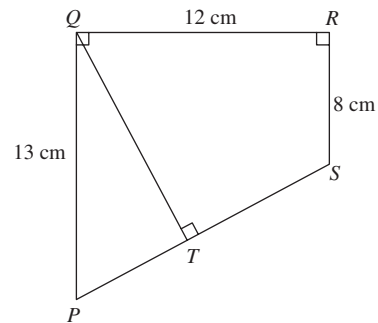
- 19 In 2019, Kim Lee invested a sum of RM800 000 in properties, shares, unit trusts and fixed deposits. The pie chart in the following diagram shows his investments.



If Kim Lee invested RM80 000 in unit trust, find the sum of money invested in properties.

- A RM250 000      C RM500 000  
 B RM400 000      D RM600 000

- 20 In the following diagram,  $PQRS$  is a trapezium.  $PTS$  is a straight line and  $QT = 12$  cm.



Find the length, in cm, of  $TS$ .

- A 6      C 8  
 B 7      D 10

**Section B**

[20 marks]

**Instruction:** Answer all questions.

- 1 (a) Mark ✓ for rational numbers.

[3 marks]

Answer:

$\frac{11}{23}$      1.63      $\sqrt{2}$      45

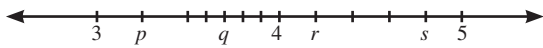
- (b) Fill in the box with the symbol  $>$  or  $<$  to show the relation between the two given numbers.

[1 mark]

Answer:

-10  -5

- 2 The diagram below shows a number line.



Circle the correct values of  $p$ ,  $q$ ,  $r$  and  $s$ .

[4 marks]

Answer:

$p =$    $3\frac{1}{2}$       $3\frac{1}{4}$

$q =$   3.7     3.72

$r =$   4.1     4.2

$s =$    $4\frac{4}{5}$       $4\frac{3}{4}$

- 3 (a) Circle a factor of 42.

[1 mark]

Answer:

13     8     21     5

- (b) Match the following ratios.

[3 marks]

Answer:

(i)   $3 : 2\frac{1}{3}$      5 : 6

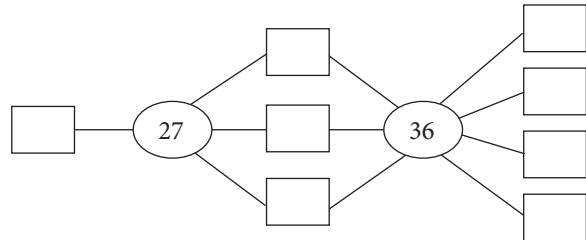
(ii)  1.8 : 2.4     9 : 7

(iii)   $1\frac{1}{4} : 1\frac{1}{2}$      3 : 4

- 4 Fill in the boxes in the answer space with factors of 27 and 36. Hence, state the highest common factor of 27 and 36.

[4 marks]

Answer:



The highest common factor of 27 and 36 is .

- 5 (a) Complete the boxes in the answer space.

[3 marks]

Answer:

$6 = 2 \times$

$9 = 3 \times$

$15 = 3 \times$

- (b) Hence, determine the lowest common multiple of 6, 9 and 15.

[1 mark]

Answer:

The lowest common multiple of 6, 9 and 15 is .

**Section C**

[60 marks]

**Instruction:** Answer all questions.

1 (a) Algebraic term:  $-7pq^3r^2$

(i) State the coefficient of  $p$  for the above term.

(ii) Given that  $-q^a r^b p^c$  is a like term for the algebraic term, such that  $a$ ,  $b$  and  $c$  are constants. Find the value of  $(a + b + c)^2$ .

[3 marks]

Answer:

(b) Solve the following simultaneous linear equations.

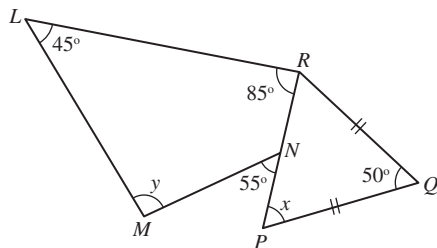
$$x + 5y = -4$$

$$2x - y = 14$$

[3 marks]

Answer:

(c) In the following diagram,  $PNR$  is a straight line and  $PQ = QR$ .



Find the values of  $x$  and  $y$ .

[4 marks]

Answer:

2 (a) Mark '✓' for a linear equation in one variable or '✗' for not a linear equation in one variable.

[3 marks]

Answer:

(i)  $4k + 3m = 12$

(ii)  $8p = 5 - 2p$

(iii)  $\frac{1}{2}r + 11 = r$

(b) A plot of land of area  $y$  hectares is planted with  $x$  hectares of sweet corns. The land area planted with sweet corns is 17 hectares less than the total of plot land area.

(i) Write an equation in terms of  $x$  and  $y$  to represent the information.

(ii) Find the largest value of  $x$  when  $y \leq 20$ .

[3 marks]

Answer:

(i)

(ii)

(c) The diagram in the answer space shows a part of a quadrilateral  $PQRS$ .

(i) By using a protractor and a ruler, complete the quadrilateral  $PQRS$  such that  $\angle QRS = 70^\circ$  and  $RS = 1.4$  cm.

(ii) Measure  $\angle QPS$ .

[4 marks]

Answer:

(i)

(ii)  $\angle QPS =$

- 3 (a) Complete the steps of workings for the following calculation.

[4 marks]

Answer:

$$\begin{aligned} \sqrt[3]{\frac{1}{27}} + \left(1\frac{1}{3}\right)^2 &= \frac{1}{\boxed{\phantom{00}}} + \left(\frac{\boxed{\phantom{00}}}{3}\right)^2 \\ &= \frac{1}{\boxed{\phantom{00}}} + \frac{\boxed{\phantom{00}}}{9} \\ &= \frac{\boxed{\phantom{00}}}{9} \\ &= \boxed{\phantom{00}} \frac{\boxed{\phantom{00}}}{9} \end{aligned}$$

- (b) Find the exact value of

$$\frac{4}{5} \div 1\frac{1}{2} - \frac{7}{30} \times \left(-\frac{9}{14}\right).$$

[3 marks]

Answer:

- (c) Solve the simultaneous linear inequalities  $4x \geq x - 12$  and  $9 + 2x < x + 15$ .

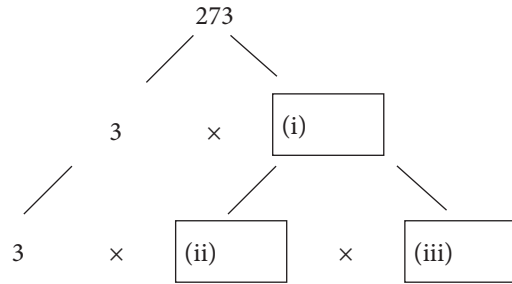
[3 marks]

Answer:

- 4 (a) Complete the factor tree in the answer space. Hence, state the prime factors of 273.

[4 marks]

Answer:



The prime factors of 273 are \_\_\_\_\_.

- (b) The following diagram shows a stem-and-leaf plot showing the distance travelled by a bicycle rider in several trainings.

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

Key: 2|1 means 21 km

- (i) State the furthest distance travelled.  
 (ii) How many times has the bicycle rider travelled greater than 30 km?

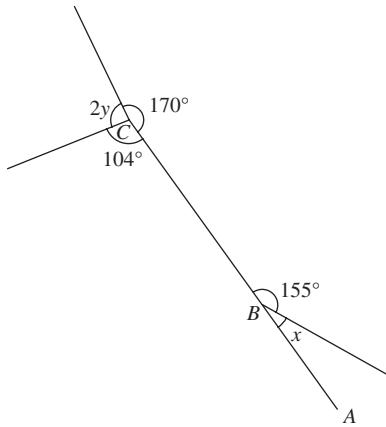
[3 marks]

Answer:

(i)

(ii)

(c) In the diagram below,  $ABC$  is a straight line.



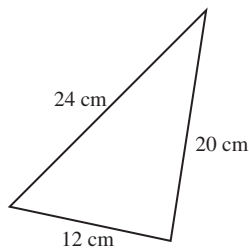
Find the values of  $x$  and  $y$ .

[3 marks]

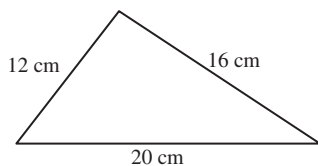
Answer:

5 (a) Determine whether the following triangle is a right-angled triangle. Give your justification.

(i)



(ii)



[3 marks]

Answer:

(i)

(ii)

(b) In an examination, 24 out of 30 students of class 1A obtained grade A in Mathematics. In class 1B, 35 out of 40 students obtained grade A in Mathematics whereas 27 out of 36 students of class 1C obtained grade A in Mathematics.

(i) Complete the table in the answer space.

[3 marks]

(ii) Which class achieved the highest percentage of grade A in Mathematics?

[1 mark]

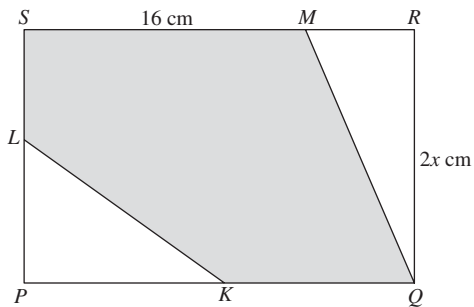
Answer:

(i)

Class	Fraction of students who obtained grade A	Percentage of students who obtained grade A
1A		
1B		
1C		

(ii)

- (c) The following diagram shows a rectangle  $PQRS$  with  $PQ = 24$  cm and  $QR = 2x$  cm.  $K$  and  $L$  are the midpoints of  $PQ$  and  $PS$  respectively.



If the area of the shaded region is  $238 \text{ cm}^2$ , find the value of  $x$ .

[3 marks]

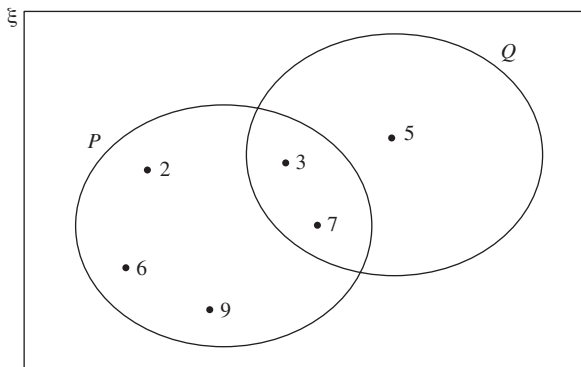
Answer:

- 6 (a) The Venn diagram in the answer space shows the relation between sets  $P$  and  $Q$  in the universal set  $\xi = \{x : 1 \leq x < 10, x \text{ is an integer}\}$ .
- Complete the Venn diagram.
  - State the complement of set  $Q$ .

[3 marks]

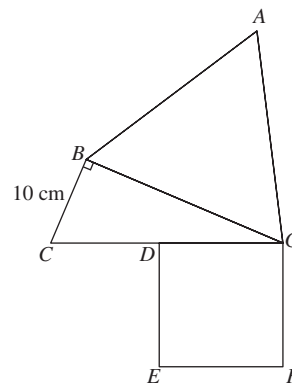
Answer:

(i)



(ii)

- (b) In the diagram below,  $ABG$  is an equilateral triangle with sides of length 24 cm and  $DEFG$  is a square.  $D$  is the midpoint of  $CG$ .



Find

- the length, in cm, of  $CG$ ,
- the perimeter, in cm, of the diagram.

[4 marks]

Answer:

(i)

(iii)



- (c) Amir offered homestay services at his village. He received bookings for a total 35 days for the period from January until May in 2020. The dot plot in the answer space shows the bookings in the first two months. The booking for March is two days less than the booking in January. The bookings for January and April are equal. Complete the dot plot.

[3 marks]

Answer:

