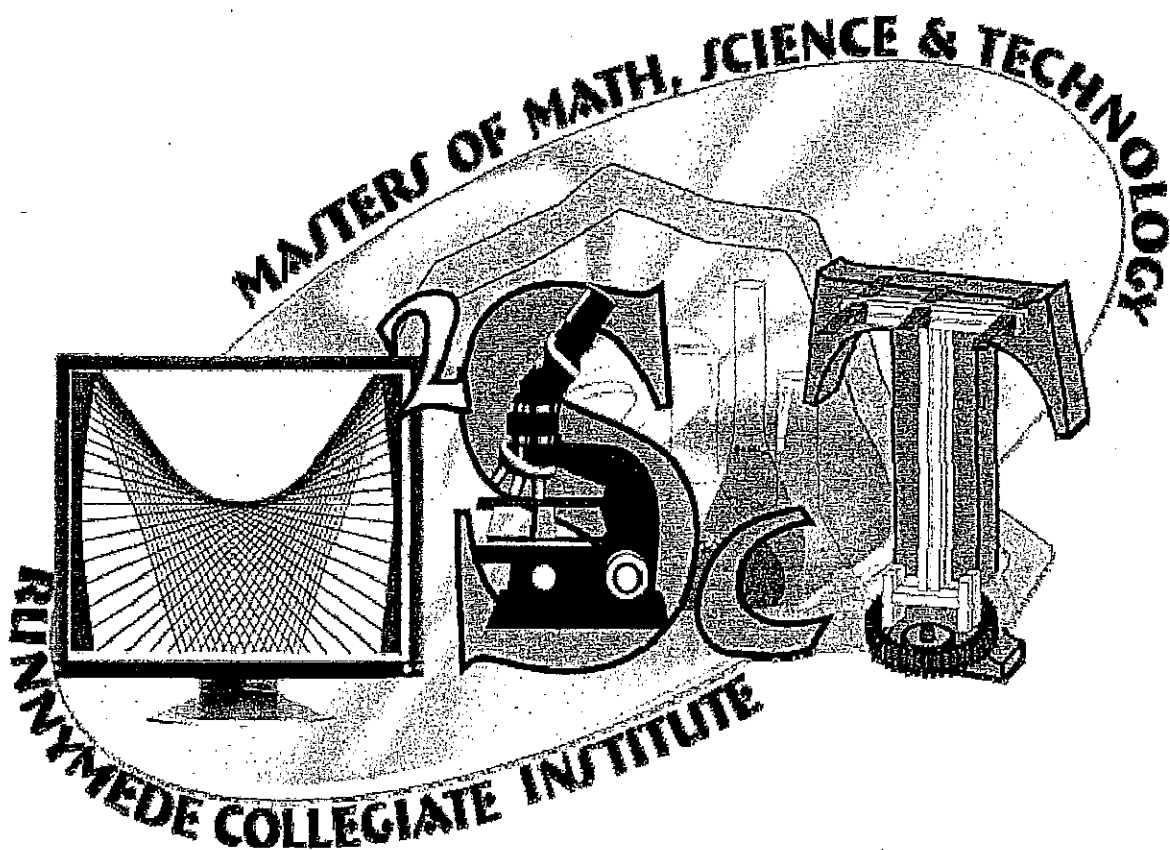


**Masters**  
**Mathematics**  
**Entrance Practice Exam**



Masters Mathematics Entrance Practice Exam

Full Solution Section

**Instructions:** Please solve the following questions. You must provide a full solution for each one. Upon completion, please start the multiple-choice section.

1. Simplify.

a)  $5 - 3(12 + 4 \div 2) - 2^2$

b)  $24 \div 3^2 + \frac{1}{2} \times \frac{4}{3}$

c)  $\frac{1}{3} - \frac{2}{5} \times \frac{3}{2}$

2. Solve for w.

a)  $12w - 5 = 3w + 4$

b)  $\frac{w}{5} - 2 = 7$

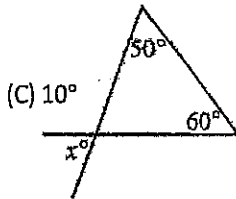
- Kayla went for a walk every day last week. Each day, she walked half as far as she did the day before. If she walked 8 kilometres on Monday last week, how many kilometres did she walk on Friday last week?
- Max sold glasses of lemonade for 25 cents each. He sold 41 glasses on Saturday and 53 glasses on Sunday. What were his total sales for these two days?
- The length of a rectangle is 6 more than twice its width. If the perimeter of the rectangle is 120, what is its width?
- Andrea has finished the third day of a six day canoe trip. If she has completed  $\frac{3}{7}$  of the trip's total distance of 168 km, how many km per day must she average for the remainder of her trip?

Masters Mathematics Entrance Practice Exam

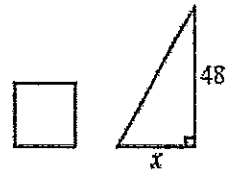
Multiple Choice Section

1. If Mukesh got 80% on a test which has a total of 50 marks, how many marks did he get?  
(A) 40 (B) 62.5 (C) 10 (D) 45 (E) 35
2. In the diagram, what is the value of  $x$ ?

- (A)  $110^\circ$  (B)  $50^\circ$   
(C)  $10^\circ$   
(D)  $60^\circ$  (E)  $70^\circ$



3. A large box of chocolates and a small box of chocolates together cost \$15. If the large box costs \$3 more than the small box, what is the price of the small box of chocolates?  
(A) \$3 (B) \$4 (C) \$5 (D) \$6 (E) \$9
4. In the Fibonacci sequence 1, 1, 2, 3, 5, . . . , each number beginning with the 2 is the sum of the two numbers before it. For example, the next number in the sequence is  $3 + 5 = 8$ . Which of the following numbers is in the sequence?  
(A) 20 (B) 21 (C) 22 (D) 23 (E) 24
5. How many positive whole numbers, including 1, divide exactly into both 40 and 72?  
(A) 9 (B) 12 (C) 4 (D) 2 (E) 5
6. To rent a kayak and a paddle, there is a fixed fee to use the paddle, plus a charge of \$5 per hour to use the kayak. For a three hour rental, the total cost is \$30. What is the total cost for a six hour rental?  
(A) \$50 (B) \$15 (C) \$45 (D) \$60 (E) \$90
7. In the diagram, the square has a perimeter of 48 and the triangle has a height of 48. If the square and the triangle have the same area, what is the value of  $x$ ?  
(A) 1.5 (B) 12 (C) 6  
(D) 3 (E) 24



8. Amos is reading a 400 page book. On Monday, he reads 40 pages. On each day after the first, the number of pages that he reads is 20 more than on the previous day. Amos finishes the book on  
(A) Friday (B) Saturday (C) Sunday (D) Monday (E) Thursday
9. Which of the following is a prime number?  
(A) 20 (B) 21 (C) 23 (D) 25 (E) 27

10. The temperature in Vancouver is  $22^{\circ}\text{C}$ . The temperature in Calgary is  $19^{\circ}\text{C}$  colder than the temperature in

Vancouver. The temperature in Quebec City is  $11^{\circ}\text{C}$  colder than the temperature in Calgary. What is the

temperature in Quebec City?

- (A)  $14^{\circ}\text{C}$       (B)  $3^{\circ}\text{C}$       (C)  $-8^{\circ}\text{C}$       (D)  $8^{\circ}\text{C}$       (E)  $-13^{\circ}\text{C}$

11. In a class of 30 students, exactly 7 have been to Mexico and exactly 11 have been to England. Of these students, 4 have been to both Mexico and England. How many students in this class have not been to Mexico or England?

- (A) 23      (B) 16      (C) 20      (D) 12      (E) 18

12. If  $x$ ,  $y$  and  $z$  are positive integers with  $xy = 18$ ,  $xz = 3$  and  $yz = 6$ , what is the value of  $x + y + z$ ?

- (A) 6      (B) 10      (C) 25      (D) 11      (E) 8

13. The Gauss family has three boys aged 7, a girl aged 14, and a boy aged 15. What is the mean (average) of the ages of the children?

- (A) 9      (B) 7      (C) 11      (D) 14      (E) 10

14. When the radius of a circle is tripled, how are the area and circumference of the circle affected?

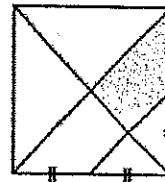
- (A) The area is 9 times as large and the circumference is 3 times as large.  
(B) The area is 3 times as large and the circumference is 9 times as large.  
(C) The area is 3 times as large and the circumference is 6 times as large.  
(D) The area is 6 times as large and the circumference is 3 times as large.  
(E) The area is 3 times as large and the circumference is 3 times as large

15. Lorri took a 240 km trip to Waterloo. On her way there, her average speed was 120 km/h. She was stopped for speeding, so on her way home her average speed was 80 km/h. What was her average speed, in km/h, for the entire round-trip?

- (A) 90      (B) 96      (C) 108      (D) 102      (E) 110

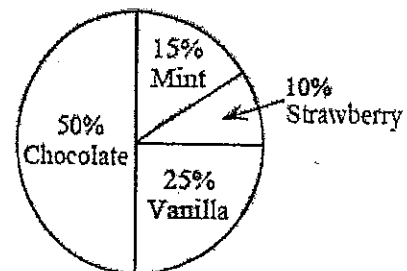
16. A square is divided, as shown. What fraction of the area of the square is shaded?

- (A)  $\frac{1}{4}$       (B)  $\frac{1}{8}$       (C)  $\frac{3}{16}$       (D)  $\frac{1}{6}$       (E)  $\frac{3}{32}$

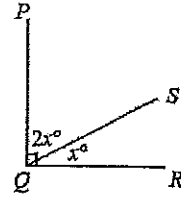


17. The circle graph shows the favourite ice cream flavours of those surveyed. What fraction of people surveyed selected either chocolate or strawberry as their favourite flavour of ice cream?

- (A)  $\frac{3}{5}$       (B)  $\frac{1}{3}$       (C)  $\frac{2}{3}$       (D)  $\frac{3}{4}$       (E)  $\frac{5}{8}$



18. In the diagram,  $\angle PQR = 90^\circ$ . The value of  $x$  is



- (A)  $30^\circ$       (B)  $60^\circ$       (C)  $90^\circ$       (D)  $10^\circ$       (E)  $45^\circ$

19. In the table, what number should be placed in the box?

- (A) 27      (B) 247      (C) 79      (D) 19      (E) 129

$n$	$n^3 + n - 1$
1	1
2	0
3	29
4	67
5	<input type="text"/>