

Leave blank

2.

$$y = \sqrt{5^x + 2}$$

(a) Complete the table below, giving the values of y to 3 decimal places.

x	0	0.5	1	1.5	2
y			2.646	3.630	

(2)

(b) Use the trapezium rule, with all the values of y from your table, to find an approximation for the value of $\int_0^2 \sqrt{5^x + 2} \, dx$.

(4)



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4. (a) Find, to 3 significant figures, the value of x for which $5^x = 7$.

(2)

(b) Solve the equation $5^{2x} - 12(5^x) + 35 = 0$.

(4)

Lined writing area for the student's solution.



Question 6 continued

Handwritten solution for Question 6 continued. The solution is written on a grid of 30 horizontal lines. It begins with the heading "Question 6 continued" in bold. The first line of the solution states "2. The acceleration is $a = \frac{v}{t} = \frac{10}{0.1} = 100 \text{ m s}^{-2}$ ". The second line continues with "3. The acceleration is $a = \frac{v}{t} = \frac{10}{0.1} = 100 \text{ m s}^{-2}$ ". The third line starts with "4. The acceleration is $a = \frac{v}{t} = \frac{10}{0.1} = 100 \text{ m s}^{-2}$ ". The fourth line begins "5. The acceleration is $a = \frac{v}{t} = \frac{10}{0.1} = 100 \text{ m s}^{-2}$ ". The fifth line starts "6. The acceleration is $a = \frac{v}{t} = \frac{10}{0.1} = 100 \text{ m s}^{-2}$ ". The sixth line continues "7. The acceleration is $a = \frac{v}{t} = \frac{10}{0.1} = 100 \text{ m s}^{-2}$ ". The seventh line starts "8. The acceleration is $a = \frac{v}{t} = \frac{10}{0.1} = 100 \text{ m s}^{-2}$ ". The eighth line begins "9. The acceleration is $a = \frac{v}{t} = \frac{10}{0.1} = 100 \text{ m s}^{-2}$ ". The ninth line starts "10. The acceleration is $a = \frac{v}{t} = \frac{10}{0.1} = 100 \text{ m s}^{-2}$ ". The tenth line continues "11. The acceleration is $a = \frac{v}{t} = \frac{10}{0.1} = 100 \text{ m s}^{-2}$ ". The eleventh line starts "12. The acceleration is $a = \frac{v}{t} = \frac{10}{0.1} = 100 \text{ m s}^{-2}$ ". The twelfth line begins "13. The acceleration is $a = \frac{v}{t} = \frac{10}{0.1} = 100 \text{ m s}^{-2}$ ". The thirteenth line starts "14. The acceleration is $a = \frac{v}{t} = \frac{10}{0.1} = 100 \text{ m s}^{-2}$ ". The fourteenth line continues "15. The acceleration is $a = \frac{v}{t} = \frac{10}{0.1} = 100 \text{ m s}^{-2}$ ". The fifteenth line starts "16. The acceleration is $a = \frac{v}{t} = \frac{10}{0.1} = 100 \text{ m s}^{-2}$ ". The sixteenth line begins "17. The acceleration is $a = \frac{v}{t} = \frac{10}{0.1} = 100 \text{ m s}^{-2}$ ". The seventeenth line starts "18. The acceleration is $a = \frac{v}{t} = \frac{10}{0.1} = 100 \text{ m s}^{-2}$ ". The eighteenth line continues "19. The acceleration is $a = \frac{v}{t} = \frac{10}{0.1} = 100 \text{ m s}^{-2}$ ". The nineteenth line starts "20. The acceleration is $a = \frac{v}{t} = \frac{10}{0.1} = 100 \text{ m s}^{-2}$ ". The twentieth line begins "21. The acceleration is $a = \frac{v}{t} = \frac{10}{0.1} = 100 \text{ m s}^{-2}$ ". The twenty-first line starts "22. The acceleration is $a = \frac{v}{t} = \frac{10}{0.1} = 100 \text{ m s}^{-2}$ ". The twenty-second line continues "23. The acceleration is $a = \frac{v}{t} = \frac{10}{0.1} = 100 \text{ m s}^{-2}$ ". The twenty-third line starts "24. The acceleration is $a = \frac{v}{t} = \frac{10}{0.1} = 100 \text{ m s}^{-2}$ ". The twenty-fourth line begins "25. The acceleration is $a = \frac{v}{t} = \frac{10}{0.1} = 100 \text{ m s}^{-2}$ ". The twenty-fifth line starts "26. The acceleration is $a = \frac{v}{t} = \frac{10}{0.1} = 100 \text{ m s}^{-2}$ ". The twenty-sixth line continues "27. The acceleration is $a = \frac{v}{t} = \frac{10}{0.1} = 100 \text{ m s}^{-2}$ ". The twenty-seventh line starts "28. The acceleration is $a = \frac{v}{t} = \frac{10}{0.1} = 100 \text{ m s}^{-2}$ ". The twenty-eighth line begins "29. The acceleration is $a = \frac{v}{t} = \frac{10}{0.1} = 100 \text{ m s}^{-2}$ ". The twenty-ninth line starts "30. The acceleration is $a = \frac{v}{t} = \frac{10}{0.1} = 100 \text{ m s}^{-2}$ ".



7.

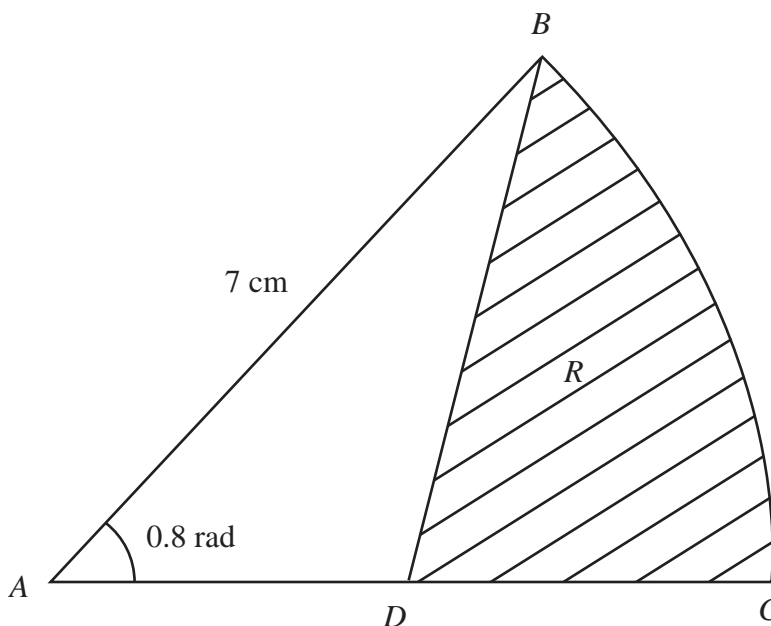


Figure 1

Figure 1 shows ABC , a sector of a circle with centre A and radius 7 cm.

Given that the size of $\angle BAC$ is exactly 0.8 radians, find

- (a) the length of the arc BC , (2)

- (b) the area of the sector ABC . (2)

The point D is the mid-point of AC . The region R , shown shaded in Figure 1, is bounded by CD , DB and the arc BC .

Find

- (c) the perimeter of R , giving your answer to 3 significant figures, (4)

- (d) the area of R , giving your answer to 3 significant figures. (4)



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Question 7 continued

Lined area for writing the answer to Question 7.



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9. Solve, for $0 \leq x < 360^\circ$,

(a) $\sin(x - 20^\circ) = \frac{1}{\sqrt{2}}$ (4)

(b) $\cos 3x = -\frac{1}{2}$ (6)



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Question 9 continued

Lined area for writing the answer to Question 9.

Q9

(Total 10 marks)

TOTAL FOR PAPER: 75 MARKS

END

