

Year 11 Zonal 2025

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Y11/2. How many handshakes are there when 28 people shake hands with each other?

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Y11/3 Make b the subject of $\frac{1}{a} = \frac{1}{b} + \frac{1}{c}$

Express your answer as a simplified fraction

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Y11/4 Jan deposits \$500 in an account that pays 16 % p.a. compound interest paid quarterly.
How much money will Jackie have in her account after $\frac{1}{2}$ year?

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Y11/5 A ball is dropped from a height of 5 m. With each bounce it rises to 60% of its previous height.

Calculate the total distance, in metres, travelled by the ball before it comes to rest.

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Y11/6. A patient requires 2400 mL of fluid to be delivered at a constant rate by means of a drip over 12 hours. Each mL of fluid is equivalent to 15 drops. How many drops per minute need to be delivered?

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Y11/7. A train departs from Town A at 3.00 pm to travel to Town B. Its average speed for the journey is 90 km/h, and it arrives at 5.00 pm. A second train departs from Town A at 3.10 pm and arrives at Town B at 4.30 pm. What is the average speed of the second train in km/h?

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Y11/8. In an arithmetic sequence has first term of 120 and the 10th term of 57.

Find the 15th term.

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Y11/9. The volume of a rectangular prism is $72\,000\text{ cm}^3$. What is the volume in m^3 ?

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. Y11/10. Luisa's normal rate of pay is \$15 per hour. Last week he was paid for 12 hours, at time- and-a-half. How many hours would Luisa need to work this week, at double time, to earn the same amount?

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Y11/11. Simplify $\frac{x^2 - 3x - 18}{x^2 + x - 42}$

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Y11/12. Solve $2x^2 - 9x = 5$

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Y11/14 A farmer wishes to enclose a rectangular field of length x metres and width y metres using 108 m of fencing material.

Write an expression, in simplified form, for the area of the field in terms of x ?

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Y11/15 Ben can do a job working alone in 1.5 hours. Den can do the same job alone in 3.5 hours.

If they both work together, in how many minutes will the job be done?

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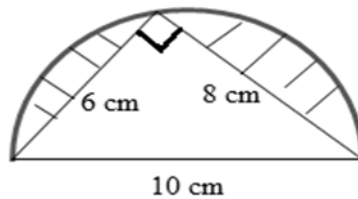
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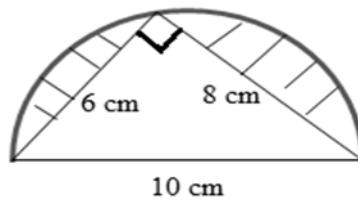
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Y11/16. Consider the semicircle of diameter 10 cm shown and the inscribed right angle triangle.



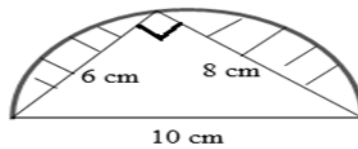
Calculate the area of the shaded region. Use $\pi = 3.14$

Y11/16. Consider the semicircle of diameter 10 cm shown and the inscribed right angle triangle.



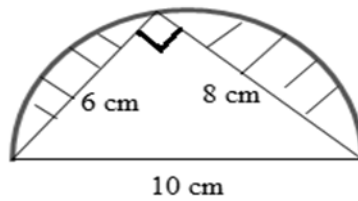
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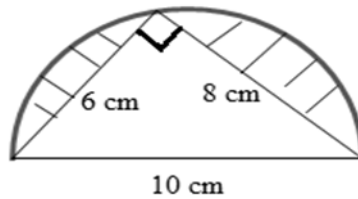
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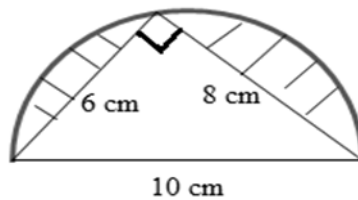
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How many \$20 notes were issued?

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Y11/18 At the school library, Dolly decides to select 3 books from a group of 5.

In how many different ways can Dolly make the selection?

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Y11/20 Expand and simplify $4x^3 - (x - 3)(2x - 1)^2 - 3$

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