

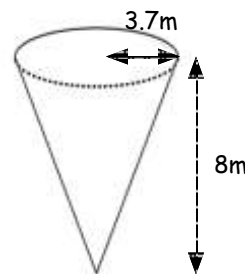
Intermediate 2 - Unit 1 - Practice NAB 2

Outcome 1

1. The Dunbartonshire Bank pays 3% compound interest per annum. How much interest would be received after 4 years on a deposit of £250? (4)
2. A new house costs £75000. The value of the house appreciated by 15% after the first year and by 11% after the second year. Calculate the value of the house after 2 years. (4)

Outcome 2

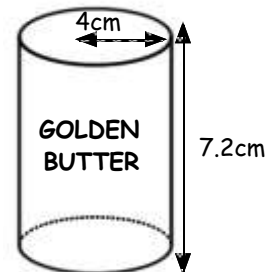
3. A container is in the shape of a cone as shown in the diagram. Calculate the volume of the container. (2)



4. Calculate the volume of a sphere with radius 4.5cm. Give your answer correct to 2 significant figures and state the units clearly. (4)



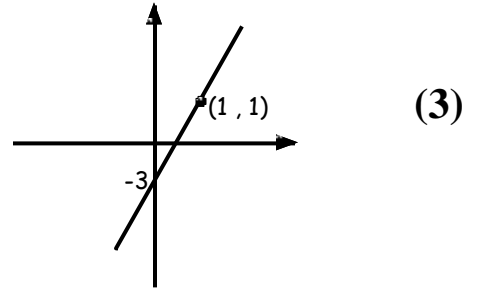
5. A dairy produces a pack of butter in the shape of a cylinder. The radius of the base is 4cm and the height is 7.2cm. Calculate the volume of the cylinder. Give your answer correct to 3 significant figures. (3)



Outcome 3

6. A is the point (2,-1) and B is the point (3,4). Find the gradient of the line AB. (2)
7. A line has equation $y = -3x + 5$. Make a sketch of this line on blank paper showing the coordinates of the intercept on the y axis. (2)

8. Find the equation of the straight line in the diagram opposite in terms of x and y .

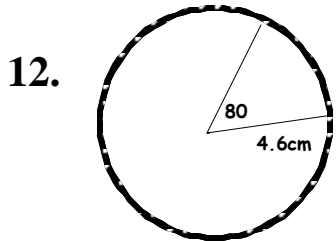
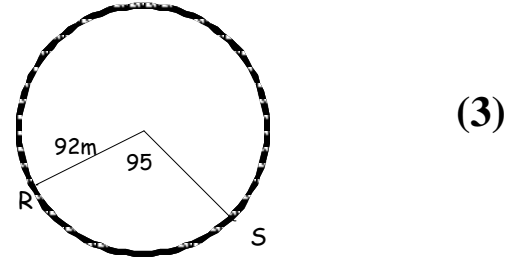


Outcome 4

9. Simplify: **a)** $x(3x - y)$ **(b)** $(x - 3)(x + 1)$ **(3)**
10. Factorise: **a)** $y^2 + 4y$ **(b)** $x^2 - 2^2$ **(c)** $x^2 + x - 12$ **(4)**

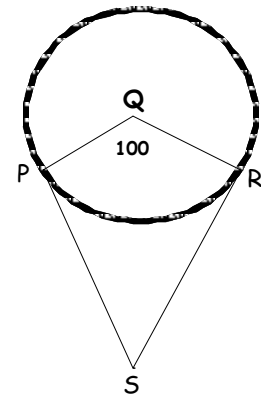
Outcome 5

11. Calculate the length of the minor arc RS in this circle with radius of 92m.

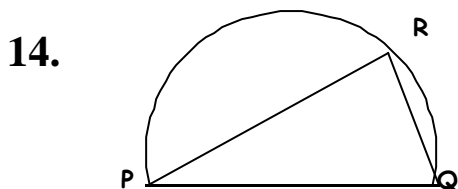


12. Calculate the area of the major sector of the circle with radius 4.6cm shown. **(3)**

13. The diagram below shows a kite PQRS and a circle with centre Q. PS is the tangent to the circle at P and RS is the tangent to the circle at R. Given that angle PQR is 100.



- a)** state the size of angle QRS **(1)**
b) find the size of angle PSR **(2)**



14. The diagram shows a triangle PQR inscribed in a Semicircle with diameter PQ. Given that the angle RPQ is 30, find the size of the shaded angle. **(1)**

Intermediate 2 - Unit 1 - Practice NAB 2 Solutions

Outcome 1 - You need 5 out of 8 to pass.

- | | |
|---|---|
| 1. Total = $1.03^4 \times 250$
= £281.38 | Interest = $281.38 - 250$
= £31.38 |
| 2. Year 1 = 1.15×75000
= £86250 | Year 2 = 1.11×86250
= £95737.50 |

Outcome 2 - You need 6 out of 9 to pass.

- | | | |
|---|---|---|
| 3. $V = \frac{1}{3}\pi r^2 h$
= $\frac{1}{3} \times \pi \times 3.7^2 \times 8$
= $344.067.. \div 3$
= 114.69m^3 | 4. $V = \frac{4}{3}\pi r^3$
= $4 \times \pi \times 4.5^3 \div 3$
= $1145.11.. \div 3$
= 381.70
= 380cm^3 | 5. $V = \pi r^2 h$
= $\pi \times 4^2 \times 7.2$
= 361.91
= 362cm^3 |
|---|---|---|

Outcome 3 - You need 5 out of 7 to pass.

- | | |
|--|---|
| 6. $m = \frac{y_2 - y_1}{x_2 - x_1}$
= $\frac{-1 - 4}{2 - 3}$
= $\frac{-5}{-1}$
= 1 | 7. Diagram drawn with straight line passing the point (0, -3) and falling steeply from Left to Right. |
| 8. $m = \frac{y_2 - y_1}{x_2 - x_1}$
= $\frac{-3 - 1}{0 - 1}$
= $\frac{-4}{-1}$
= 4 | Equation is $y = 4x - 3$ |

Outcome 4 - You need 5 out of 7 to pass.

9. a) $x(3x - y) = 3x^2 - xy$ (b) $(x - 3)(x + 1) = x^2 - 2x - 3$

10. a) $y^2 + 4y = y(y + 4)$ (b) $x^2 - 2^2 = (x - 2)(x + 2)$

c) $x^2 + x - 12 = (x - 3)(x + 4)$

Outcome 5 - You need 7 out of 10 to pass.

11. Arc = $\frac{x}{360} \times \pi D$
= $\frac{95}{360} \times \pi \times 184$
= $\frac{54915.04}{360}$
= 152.54m

12. Area = $\frac{x}{360} \times \pi r^2$
= $\frac{280}{360} \times \pi \times 4.6^2$
= $\frac{18613.308}{360}$
= 51.7cm²

13. a) Angle QRS = 90

(b) PSR = $360 - (100 + 90 + 90)$
= 80

14. PSR = $180 - (90 + 30)$
= 60