Maths White Board

Foundation Formula Sheet Rehearsal

Written by Matt Woodfine

Foundation Formula Sheet 2024

Perimeter, area and volume

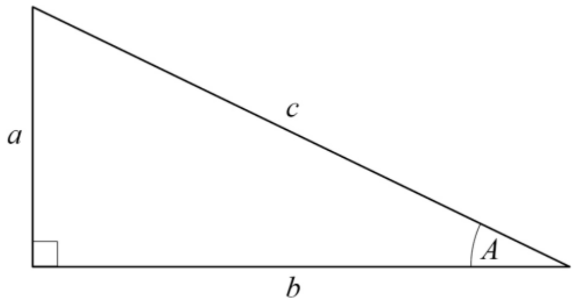
Where a and b are the lengths of the parallel sides and h is their perpendicular separation:

Area of a trapezium = $\frac{1}{2}(a + b)h$

Volume of a prism = area of cross section x length

Where r is the radius and d is the diameter:
Circumference of a circle = $2\pi r = \pi d$
Area of a circle = πr^2

Pythagoras' Theorem and Trigonometry



In any right-angled triangle where a, b and c are the length of the sides and c is the hypotenuse:
$a^2 + b^2 = c^2$

In any right-angled triangle ABC where a, b and c are the length of the sides and c is the hypotenuse:

$\sin A = \frac{a}{c}$ $\cos A = \frac{b}{c}$ $\tan A = \frac{a}{b}$

Compound interest

Where P is the principal amount, r is the interest rate over a given period and n is the number of times that the interest is compounded:

Total accrued = $P(1 + \frac{r}{100})^n$

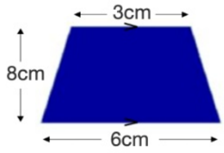
Probability

Where $P(A)$ is the probability of outcome A and $P(B)$ is the probability of outcome B:

$P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$

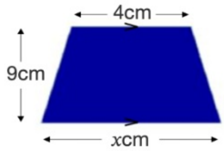
QU 1 - Area of 2D shapes

Calculate the area.



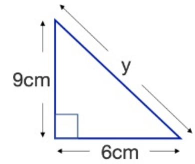
QU 2 - Reverse area of 2D shapes

Calculate the value of x if the area is $40.5cm^2$.



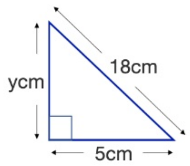
QU 3 - Apply Pythagoras' Theorem

Calculate y to 1dp.



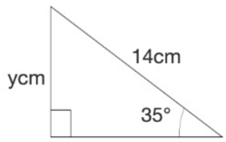
QU 4 - Apply Pythagoras' Theorem

Calculate y to 1dp.



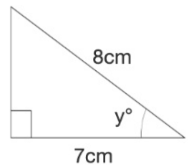
QU 5 - Apply SOH CAH TOA

Find y to 1dp.



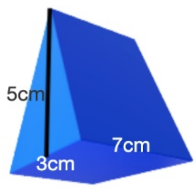
QU 6 - Apply SOH CAH TOA

Find y to 1dp.



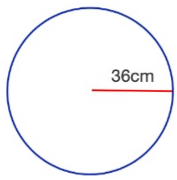
QU 7 - Volume of 3D shapes

Calculate the volume.



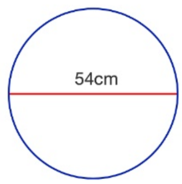
QU 8 - Area of a circle

Find the area to 1dp.



QU 9 - Area of a circle

Find the area to 1dp.

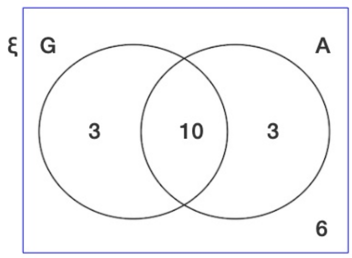


QU 10 - Calculate growth/decay

Mia invests £80 into a bank account returning 4% each year for 5 years. How much does Mia have in the account after 5 years?

QU 11 - Complete and interpret a venn diagram

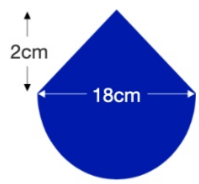
Find P(G∪A).



QU 12 - Area of composite shapes

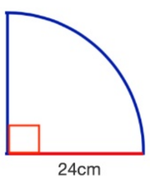
Calculate the area to 1dp.

(Not drawn to scale)



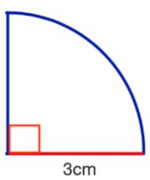
QU 13 - Circumference of a circle

Find the arc length to 1dp.



QU 14 - Area of a circle

Find the area to 1dp.

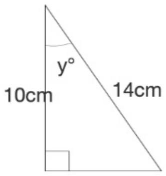


QU 15 - Calculate growth/decay

Ruth invests £90 into a bank account returning 0.3% each year for 4 years. How much does Ruth have in the account after 4 years?

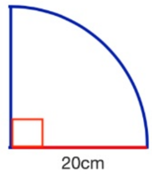
QU 1 - Apply SOH CAH TOA

Find y to 1dp.



QU 2 - Circumference of a circle

Find the perimeter to 1dp.

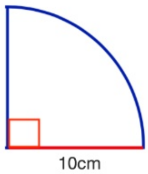


QU 3 - Calculate growth/decay

Ruth lost 3% on the value of a car worth £800 each year for 2 years. How much is the vehicle now worth?

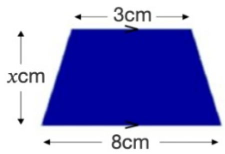
QU 4 - Area of a circle

Find the area to 1dp.



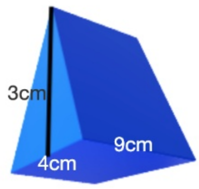
QU 5 - Reverse area of 2D shapes

Calculate the value of x if the area is 22cm^2.



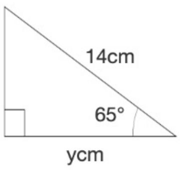
QU 6 - Volume of 3D shapes

Calculate the volume.



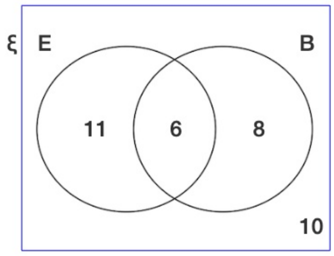
QU 7 - Apply SOH CAH TOA

Find y to 1dp.



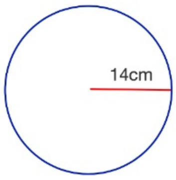
QU 8 - Complete and interpret a venn diagram

Find P(E∪B).



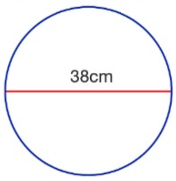
QU 9 - Area of a circle

Find the area to 1dp.



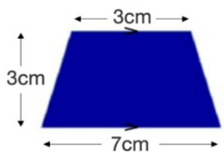
QU 10 - Area of a circle

Find the area to 1dp.



QU 11 - Area of 2D shapes

Calculate the area.



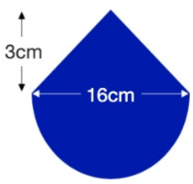
QU 12 - Calculate growth/decay

Will invests £70 into a bank account returning 0.6% each year for 4 years. How much does Will have in the account after 4 years?

QU 13 - Area of composite shapes

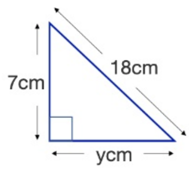
Calculate the area to 1dp.

(Not drawn to scale)



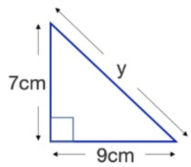
QU 14 - Apply Pythagoras' Theorem

Calculate y to 1dp.



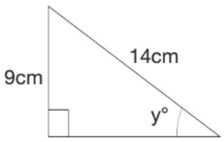
QU 15 - Apply Pythagoras' Theorem

Calculate y to 1dp.



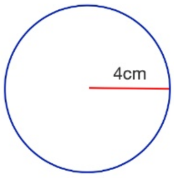
QU 1 - Apply SOH CAH TOA

Find y to 1dp.



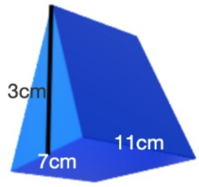
QU 2 - Area of a circle

Find the area to 1dp.



QU 3 - Volume of 3D shapes

Calculate the volume.

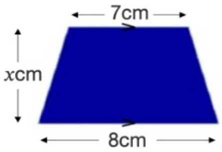


QU 4 - Calculate growth/decay

Mia lost 0.4% on the value of a car worth £800 each year for 4 years. How much is the vehicle now worth?

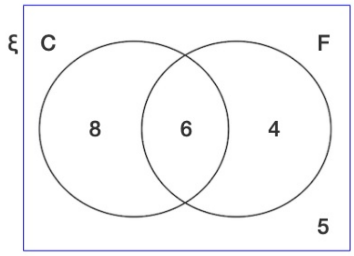
QU 5 - Reverse area of 2D shapes

Calculate the value of x if the area is 37.5cm^2.



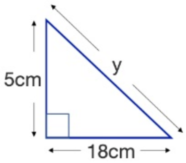
QU 6 - Complete and interpret a venn diagram

Find P(C∪F).



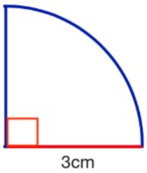
QU 7 - Apply Pythagoras' Theorem

Calculate y to 1dp.



QU 8 - Area of a circle

Find the area to 1dp.



QU 9 - Apply SOH CAH TOA

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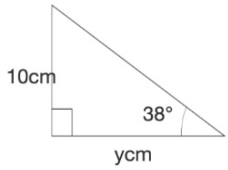
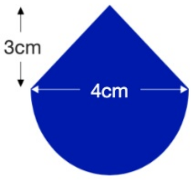


QU 10 - Area of composite shapes

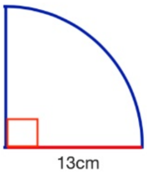
Calculate the area to 1dp.

(Not drawn to scale)



QU 11 - Circumference of a circle

Find the perimeter to 1dp.



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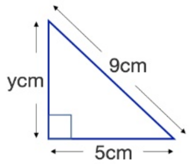
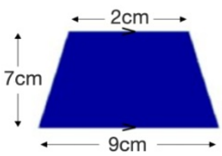


QU 13 - Calculate growth/decay

Dave invests £90 into a bank account returning 4% each year for 5 years. How much does Dave have in the account after 5 years?

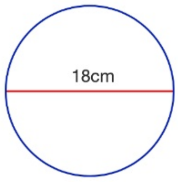
QU 14 - Area of 2D shapes

Calculate the area.



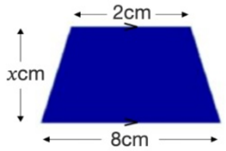
QU 15 - Area of a circle

Find the area to 1dp.



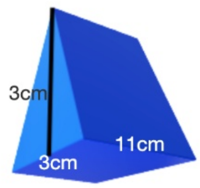
QU 1 - Reverse area of 2D shapes

Calculate the value of x if the area is $40cm^2$.



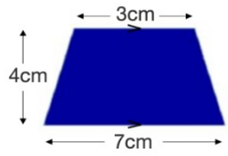
QU 2 - Volume of 3D shapes

Calculate the volume.



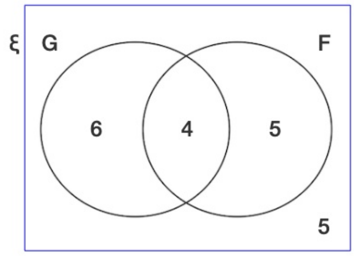
QU 3 - Area of 2D shapes

Calculate the area.



QU 4 - Complete and interpret a venn diagram

Find P(G∪F).



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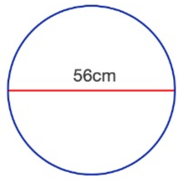
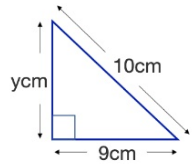


QU 6 - Apply Pythagoras' Theorem

Calculate y to 1dp.



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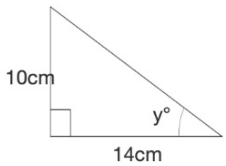

QU 8 - Area of composite shapes

Calculate the area to 1dp.

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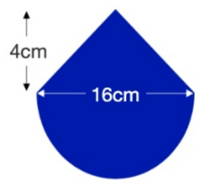

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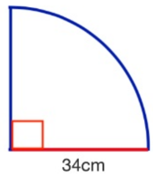

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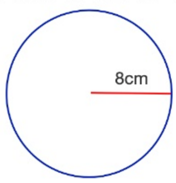

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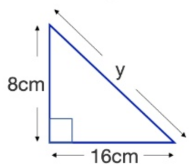


QU 12 - Calculate growth/decay

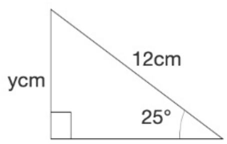
Will lost 6% on the value of a car worth £200 each year for 3 years. How much is the vehicle now worth?

QU 13 - Calculate growth/decay

Dave invests £60 into a bank account returning 0.5% each year for 5 years. How much does Dave have in the account after 5 years?

QU 14 - Apply SOH CAH TOA

Find y to 1dp.



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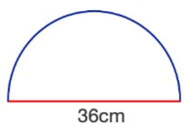

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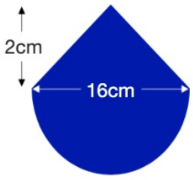
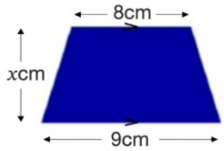


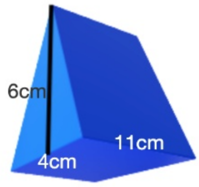
QU 2 - Reverse area of 2D shapes

Calculate the value of x if the area is 25.5cm^2.



QU 3 - Volume of 3D shapes

Calculate the volume.



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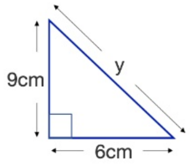

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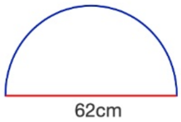

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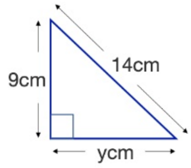
Calculate y to 1dp.



QU 7 - Calculate growth/decay

Mia lost 2% on the value of a car worth £800 each year for 4 years. How much is the vehicle now worth?

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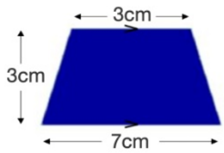
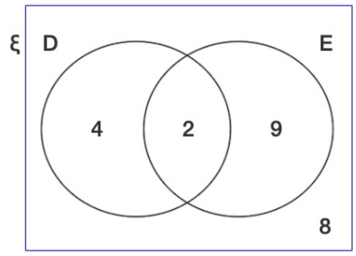
Calculate the area.



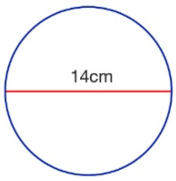
QU 9 - Complete and interpret a venn diagram

Find P(D∪E).



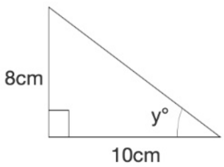
QU 10 - Area of a circle

Find the area to 1dp.



QU 11 - Apply SOH CAH TOA

Find y to 1dp.



QU 12 - Calculate growth/decay

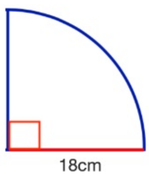
Ruth lost 0.3% on the value of a car worth £700 each year for 5 years. How much is the vehicle now worth?

QU 13 - Apply SOH CAH TOA

Find y to 1dp.

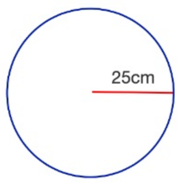
QU 14 - Area of a circle

Find the area to 1dp.



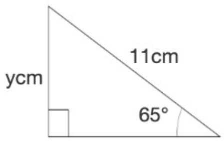
QU 15 - Area of a circle

Find the area to 1dp.



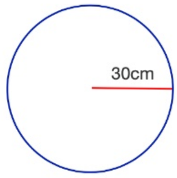
QU 1 - Apply SOH CAH TOA

Find y to 1dp.



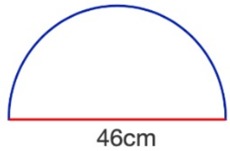
QU 2 - Area of a circle

Find the area to 1dp.



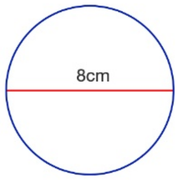
QU 3 - Area of a circle

Find the area to 1dp.



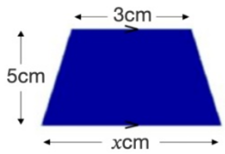
QU 4 - Area of a circle

Find the area to 1dp.



QU 5 - Reverse area of 2D shapes

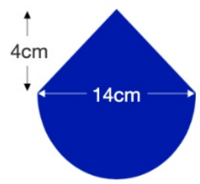
Calculate the value of x if the area is 27.5cm^2.



QU 6 - Area of composite shapes

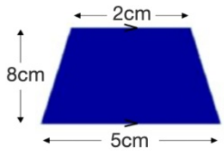
Calculate the area to 1dp.

(Not drawn to scale)



QU 7 - Area of 2D shapes

Calculate the area.

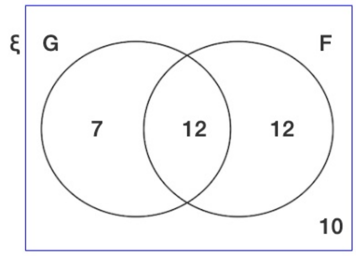


QU 8 - Calculate growth/decay

Mia invests £60 into a bank account returning 0.6% each year for 4 years. How much does Mia have in the account after 4 years?

QU 9 - Complete and interpret a venn diagram

Find P(G∪F).

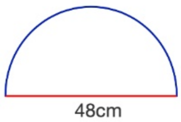


QU 10 - Calculate growth/decay

Will lost 4% on the value of a car worth £400 each year for 4 years. How much is the vehicle now worth?

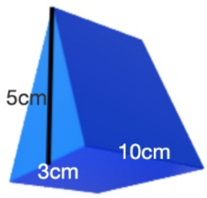
QU 11 - Circumference of a circle

Find the perimeter to 1dp.



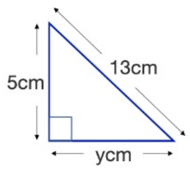
QU 12 - Volume of 3D shapes

Calculate the volume.



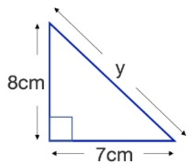
QU 13 - Apply Pythagoras' Theorem

Calculate y to 1dp.



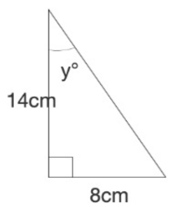
QU 14 - Apply Pythagoras' Theorem

Calculate y to 1dp.



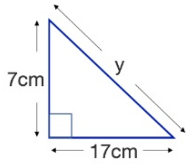
QU 15 - Apply SOH CAH TOA

Find y to 1dp.



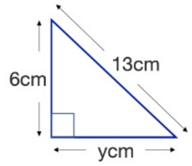
QU 1 - Apply Pythagoras' Theorem

Calculate y to 1dp.



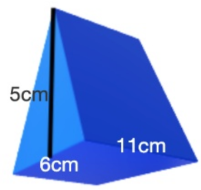
QU 2 - Apply Pythagoras' Theorem

Calculate y to 1dp.



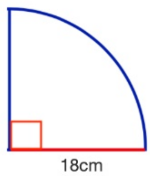
QU 3 - Volume of 3D shapes

Calculate the volume.



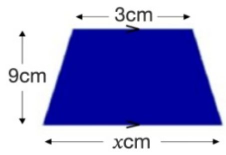
QU 4 - Area of a circle

Find the area to 1dp.



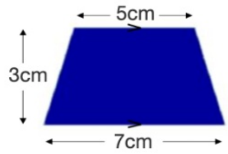
QU 5 - Reverse area of 2D shapes

Calculate the value of x if the area is 54cm^2.



QU 6 - Area of 2D shapes

Calculate the area.



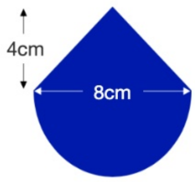
QU 7 - Calculate growth/decay

Tia lost 4% on the value of a car worth £800 each year for 2 years. How much is the vehicle now worth?

QU 8 - Area of composite shapes

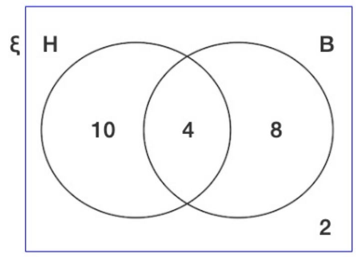
Calculate the area to 1dp.

(Not drawn to scale)



QU 9 - Complete and interpret a venn diagram

Find P(H∪B).

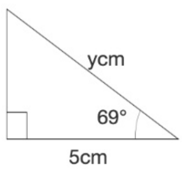


QU 10 - Calculate growth/decay

Brad invests £80 into a bank account returning 0.6% each year for 5 years. How much does Brad have in the account after 5 years?

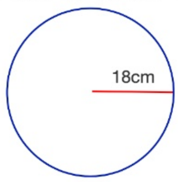
QU 11 - Apply SOH CAH TOA

Find y to 1dp.



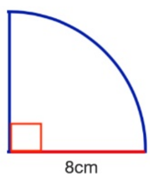
QU 12 - Area of a circle

Find the area to 1dp.



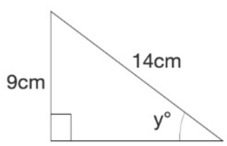
QU 13 - Circumference of a circle

Find the arc length to 1dp.



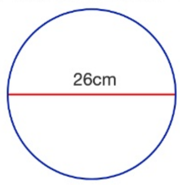
QU 14 - Apply SOH CAH TOA

Find y to 1dp.



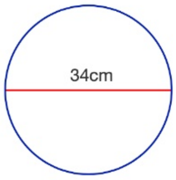
QU 15 - Area of a circle

Find the area to 1dp.



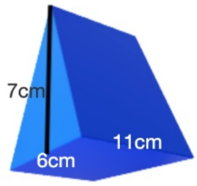
QU 1 - Area of a circle

Find the area to 1dp.



QU 2 - Volume of 3D shapes

Calculate the volume.

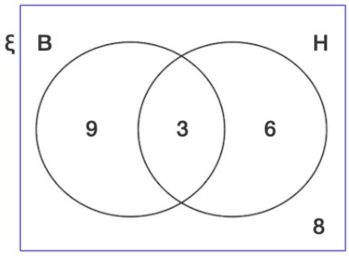


QU 3 - Calculate growth/decay

Mia lost 0.5% on the value of a car worth £200 each year for 3 years. How much is the vehicle now worth?

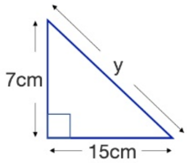
QU 4 - Complete and interpret a venn diagram

Find P(B∪H).



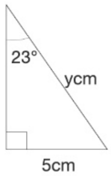
QU 5 - Apply Pythagoras' Theorem

Calculate y to 1dp.



QU 6 - Apply SOH CAH TOA

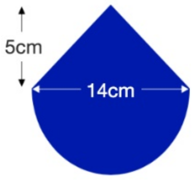
Find y to 1dp.



QU 7 - Area of composite shapes

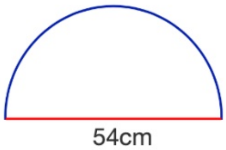
Calculate the area to 1dp.

(Not drawn to scale)



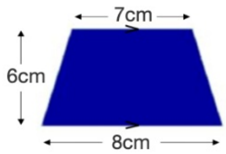
QU 8 - Area of a circle

Find the area to 1dp.



QU 9 - Area of 2D shapes

Calculate the area.

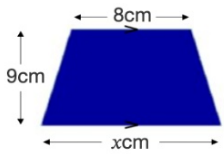


QU 10 - Calculate growth/decay

Dave lost 2% on the value of a car worth £900 each year for 4 years. How much is the vehicle now worth?

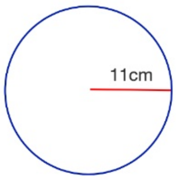
QU 11 - Reverse area of 2D shapes

Calculate the value of x if the area is $76.5cm^2$.



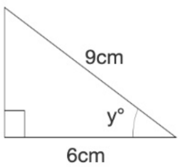
QU 12 - Area of a circle

Find the area to 1dp.



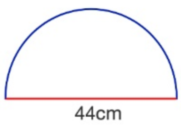
QU 13 - Apply SOH CAH TOA

Find y to 1dp.



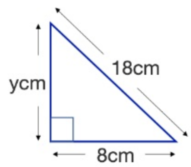
QU 14 - Circumference of a circle

Find the perimeter to 1dp.



QU 15 - Apply Pythagoras' Theorem

Calculate y to 1dp.



ANS 1 - Area of 2D shapes

$36cm^2$

ANS 2 - Reverse area of 2D shapes

5cm

ANS 3 - Apply Pythagoras' Theorem

10.8cm

ANS 4 - Apply Pythagoras' Theorem

17.3cm

ANS 5 - Apply SOH CAH TOA

8.0cm

ANS 6 - Apply SOH CAH TOA

29.0°

ANS 7 - Volume of 3D shapes

$52.5cm^3$

ANS 8 - Area of a circle

$4071.5cm^2$

ANS 9 - Area of a circle

$2290.2cm^2$

ANS 10 - Calculate growth/decay

£97.33

ANS 11 - Complete and interpret a venn diagram

$\frac{8}{11}$

ANS 12 - Area of composite shapes

$145.2cm^2$

ANS 13 - Circumference of a circle

37.7cm

ANS 14 - Area of a circle

$7.1cm^2$

ANS 15 - Calculate growth/decay

£91.08

ANS 1 - Apply SOH CAH TOA

44.4°

ANS 2 - Circumference of a circle

71.4cm

ANS 3 - Calculate growth/decay

£752.72

ANS 4 - Area of a circle

$78.5cm^2$

ANS 5 - Reverse area of 2D shapes

4cm

ANS 6 - Volume of 3D shapes

$54cm^3$

ANS 7 - Apply SOH CAH TOA

5.9cm

ANS 8 - Complete and interpret a venn diagram

$\frac{5}{7}$

ANS 9 - Area of a circle

$615.8cm^2$

ANS 10 - Area of a circle

$1134.1cm^2$

ANS 11 - Area of 2D shapes

$15cm^2$

ANS 12 - Calculate growth/decay

£71.70

ANS 13 - Area of composite shapes

$124.5cm^2$

ANS 14 - Apply Pythagoras' Theorem

16.6cm

ANS 15 - Apply Pythagoras' Theorem

11.4cm

ANS 1 - Apply SOH CAH TOA	ANS 2 - Area of a circle	ANS 3 - Volume of 3D shapes
$40.0°$	$50.3cm^2$	$115.5cm^3$
ANS 4 - Calculate growth/decay	ANS 5 - Reverse area of 2D shapes	ANS 6 - Complete and interpret a venn diagram
£787.28	5cm	$\frac{18}{23}$
ANS 7 - Apply Pythagoras' Theorem	ANS 8 - Area of a circle	ANS 9 - Apply SOH CAH TOA
18.7cm	$7.1cm^2$	12.8cm
ANS 10 - Area of composite shapes	ANS 11 - Circumference of a circle	ANS 12 - Apply Pythagoras' Theorem
$12.3cm^2$	46.4cm	7.5cm
ANS 13 - Calculate growth/decay	ANS 14 - Area of 2D shapes	ANS 15 - Area of a circle
£109.50	$38.5cm^2$	$254.5cm^2$

ANS 1 - Reverse area of 2D shapes	ANS 2 - Volume of 3D shapes	ANS 3 - Area of 2D shapes
8cm	$49.5cm^3$	$20cm^2$

ANS 4 - Complete and interpret a venn diagram	ANS 5 - Area of a circle	ANS 6 - Apply Pythagoras' Theorem
$\frac{3}{4}$	$2463.0cm^2$	4.4cm

ANS 7 - Apply SOH CAH TOA	ANS 8 - Area of composite shapes	ANS 9 - Area of a circle
35.5°	$132.5cm^2$	$907.9cm^2$

ANS 10 - Area of a circle	ANS 11 - Apply Pythagoras' Theorem	ANS 12 - Calculate growth/decay
$201.1cm^2$	17.9cm	£166.12

ANS 13 - Calculate growth/decay	ANS 14 - Apply SOH CAH TOA	ANS 15 - Circumference of a circle
£61.52	5.1cm	56.5cm

ANS 1 - Area of composite shapes	ANS 2 - Reverse area of 2D shapes	ANS 3 - Volume of 3D shapes
$116.5cm^2$	3cm	$132cm^3$
ANS 4 - Apply Pythagoras' Theorem	ANS 5 - Circumference of a circle	ANS 6 - Apply Pythagoras' Theorem
10.8cm	159.4cm	10.7cm
ANS 7 - Calculate growth/decay	ANS 8 - Area of 2D shapes	ANS 9 - Complete and interpret a venn diagram
£737.89	$15cm^2$	$\frac{15}{23}$
ANS 10 - Area of a circle	ANS 11 - Apply SOH CAH TOA	ANS 12 - Calculate growth/decay
$153.9cm^2$	38.7°	£689.56
ANS 13 - Apply SOH CAH TOA	ANS 14 - Area of a circle	ANS 15 - Area of a circle
10.9cm	$254.5cm^2$	$1963.5cm^2$

ANS 1 - Apply SOH CAH TOA	ANS 2 - Area of a circle	ANS 3 - Area of a circle
10.0cm	2827.4cm^2	831.0cm^2
ANS 4 - Area of a circle	ANS 5 - Reverse area of 2D shapes	ANS 6 - Area of composite shapes
50.3cm^2	8cm	105.0cm^2
ANS 7 - Area of 2D shapes	ANS 8 - Calculate growth/decay	ANS 9 - Complete and interpret a venn diagram
28cm^2	£61.45	$\frac{31}{41}$
ANS 10 - Calculate growth/decay	ANS 11 - Circumference of a circle	ANS 12 - Volume of 3D shapes
£339.74	123.4cm	75cm^3
ANS 13 - Apply Pythagoras' Theorem	ANS 14 - Apply Pythagoras' Theorem	ANS 15 - Apply SOH CAH TOA
12.0cm	10.6cm	29.7°

ANS 1 - Apply Pythagoras' Theorem

18.4cm

ANS 2 - Apply Pythagoras' Theorem

11.5cm

ANS 3 - Volume of 3D shapes

165cm^3

ANS 4 - Area of a circle

254.5cm^2

ANS 5 - Reverse area of 2D shapes

9cm

ANS 6 - Area of 2D shapes

18cm^2

ANS 7 - Calculate growth/decay

£737.28

ANS 8 - Area of composite shapes

41.1cm^2

ANS 9 - Complete and interpret a venn diagram

$\frac{11}{12}$

ANS 10 - Calculate growth/decay

£82.43

ANS 11 - Apply SOH CAH TOA

14.0cm

ANS 12 - Area of a circle

1017.9cm^2

ANS 13 - Circumference of a circle

12.6cm

ANS 14 - Apply SOH CAH TOA

40.0°

ANS 15 - Area of a circle

530.9cm^2

ANS 1 - Area of a circle	ANS 2 - Volume of 3D shapes	ANS 3 - Calculate growth/decay
$907.9cm^2$	$231cm^3$	£197.01
ANS 4 - Complete and interpret a venn diagram	ANS 5 - Apply Pythagoras' Theorem	ANS 6 - Apply SOH CAH TOA
$\frac{9}{13}$	16.6cm	12.8cm
ANS 7 - Area of composite shapes	ANS 8 - Area of a circle	ANS 9 - Area of 2D shapes
$112.0cm^2$	$1145.1cm^2$	$45cm^2$
ANS 10 - Calculate growth/decay	ANS 11 - Reverse area of 2D shapes	ANS 12 - Area of a circle
£830.13	9cm	$380.1cm^2$
ANS 13 - Apply SOH CAH TOA	ANS 14 - Circumference of a circle	ANS 15 - Apply Pythagoras' Theorem
48.2°	113.1cm	16.1cm