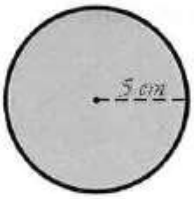
LESSON 1 ANSWERS

Area of a Circle

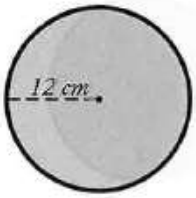
To find the area of a circle, use the formula **pi x radius^2 = area.**
This formula is often written as $A = \pi r^2$.



The circle pictured here has a radius of 5 cm.
$r = 5$ cm
$\pi \approx 3.14$
$A = 3.14 \times (5 \text{ cm} \times 5 \text{ cm})$
$A = 3.14 \times 25 \text{ cm}^2$
$A = 78.50 \text{ cm}^2$

Find the area of each circle. Use 3.14 for pi.

a.

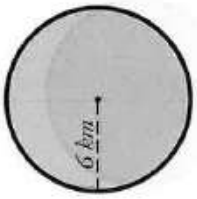


452.16 cm^2

b.

28.26 m^2

c.

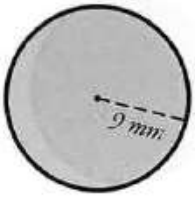


113.04 km^2

d.

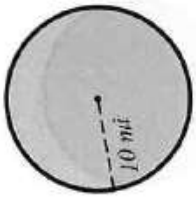
153.86 in.^{2}

e.



254.34 mm^2

f.



314 mi^2

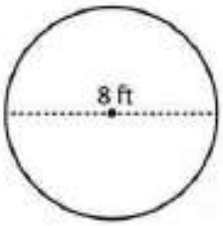
g. Kaylee and Rory have a circular swimming pool. The pool has a cover that fits snuggly over the top of it. If the radius of the pool is 11 ft, what is the surface area of the cover?

3.14 x 121 = 379.94 ft^2

Answers to Finding the Area of a Circle

1) 452.4 mi^2
2) 78.5 km^2
3) 113.04 mi^2
4) 28.3 yd^2
5) 78.5 ft^2
6) 232.4 in^2
7) 314 km^2
8) 201.1 cm^2
9) 153.9 ft^2
10) 113.1 km^2
11) 314.2 m^2
12) 113.04 m^2
13) 69.08 yd^2
14) 254.5 ft^2
15) 201.1 mi^2
16) 530.66 mi^2
17) 380.1 yd^2
18) 28.3 m^2
19) 113.04 km^2
20) 12.6 in^2

Example:



Area of a circle = πr^2

Diameter = 8 ft

Radius (r) = 4 ft

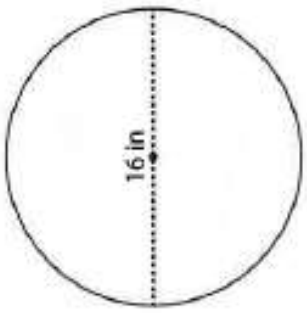
Area = πr^2

= $\pi \times 4 \times 4$

Area = **16π ft^2**

Find the exact area of each circle.

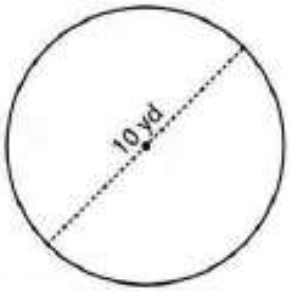
1)



Area = **64π in^2**

200.96 in^2

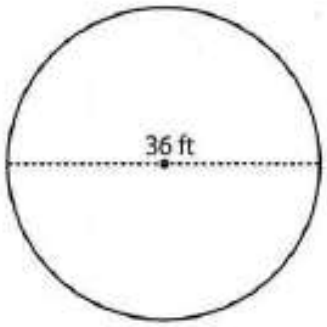
2)



Area = **25π yd^2**

78.5 yd^2

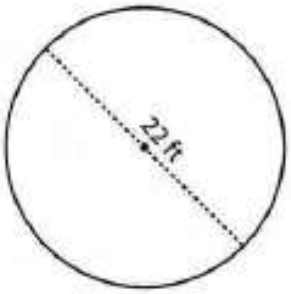
3)



Area = **324π ft^2**

1017.36 ft^2

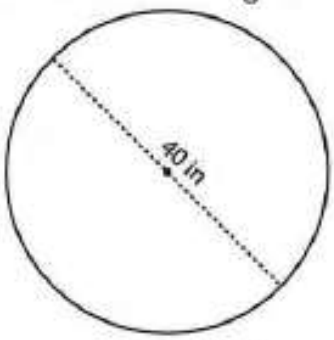
4)



Area = **121π ft^2**

379.94 ft^2

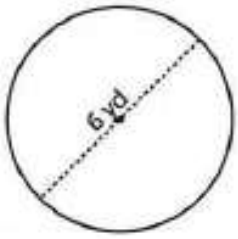
5)



Area = **400π in^2**

1256 in^2

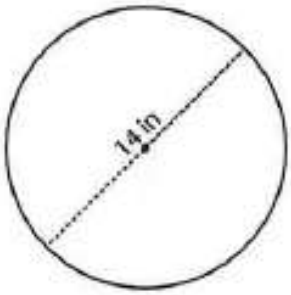
6)



Area = **9π yd^2**

28.26 yd^2

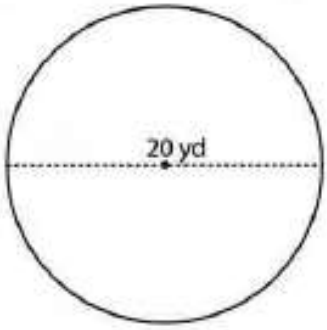
7)



Area = **49π in^2**

153.86 in^2

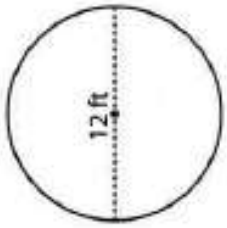
8)



Area = **100π yd^2**

314 yd^2

9)



Area = **36π ft^2**

113.04 ft^2

LESSON 2 ANSWERS

CHALLENGE 1	CHALLENGE 2	CHALLENGE 3
1. √34 2. √116 3. √85 4. √89 5. √73 6. √61 7. √136 8. √130	1. √505 2. √653 3. √520 4. √1018 5. √1597 6. √2725	1. 4cm 2. 5cm 3. 8cm 4. 12cm

LESSON 3 ANSWERS

A. ① $8a$

② $2a$

③ $5a$

④ $4x$

⑤ 0

⑥ 0

⑦ $2a+7c$

⑧ $5x+2y$

⑨ $2x+1$

⑩ $2x+5y$

⑪ $6y$

⑫ $3x+2y$

⑬ 0

⑭ $3p+2q$

⑮ $-p$

B.

① $4x-12$ ② $8x-12$ ③ $6-8y$ ④ x^2+x

⑤ x^2-2x ⑥ x^3+4x^2-3x ⑦ $xy-y^3$

⑧ $4p+8+6p-9$
$= 10p-1$

⑨ $6p+4+6p-9$
$= 12p-5$

⑩ $6p-15+6p-6$
$= 12p-21$

⑪ $2p^2+4p+6p^2-9p$
$= 8p^2-5p$

⑫ $3p^2-6p+6p^2-4p$
$= 9p^2-10p$

⑬ $2p^2-6p+9p^2-6p$
$= 11p^2-12p$

C.

① $x = 9-3 = 6$

② $x = \frac{6}{2} = 3$

③ $4-5 = x$
$-1 = x$

④ $2x = 13-3$
$2x = 10$
$x = 5$

⑤ $x = \frac{1}{2}$

⑥ $x = \frac{2}{3}$

⑦ $x = 5$

⑧ $4x = 20$
$x = 5$

⑨ $x = -5$

⑩ $x = -3$

⑪ $x = -2$

⑫ $x = -\frac{1}{4}$

⑬ $2x = -8$
$x = -4$

⑭ $2x = 8$
$x = 4$

⑮ $2x - x = 2+3$
$x = 5$

LESSONS 4 and 5

Answers

Clue 1

The poisoner has no freckles

Clue 2

The murderer is cold blooded like their pet

121110

O	1	O	O	2	O	O	1	O	O	1	O	1	1	1	O
Z	T	S	R	H	P	Q	E	F	J	M	N	U	W	X	R

110102

2	O	1	O	1	1	1	O	O	O	1	1	1	O	1	2
I	J	D	S	E	Y	W	R	Q	P	E	C	A	R	T	I

0180110

1	O	1	O	1	8	2	1	O	8	O	1	1	2	1	O
E	S	C	G	A	O	I	E	L	O	L	D	B	I	E	L

88111020

1	8	1	8	O	O	1	1	O	1	O	1	1	2	O	O
E	O	A	O	F	R	D	E	P	D	L	W	D	I	K	J

112120011

O	1	1	O	O	2	1	O	O	2	O	1	O	O	1	1
Q	E	T	S	P	H	E	F	P	I	R	M	P	J	E	T

Note: mammals and birds are warm blooded – all others are cold blooded.

Clue 3

The murderer is left handed

7) square numbers

8) prime numbers

10) Fibonacci

13) prime numbers

14) doubling

17) doubling

Clue 4

The killer rides a motorbike

Clue 5

The murderer educated at an all boys school

TDL/HUL/ECB/MAO/UTY/RES/DDS/EAC/RTH/EAO/RNO/EAL

T	H	E	M	U	R	D	E	R	E	R	E
D	U	C	A	T	E	D	A	T	A	N	A
L	L	B	O	Y	S	S	C	H	O	O	L

Clue 6

Diamonds in toilet cistern