

13
CLUES



CRACK THE CODE

Every circle has its centre at the origin, so its equation is $x^2 + y^2 = r^2$. Give gradients as fractions. Look your answer up in the **Code Box** and write the letter it unlocks in the white box. Collect all thirteen letters in the strip, then unscramble them to find the answer.

1

$x^2 + y^2 = 81$
Find the radius.

H

2

$x^2 + y^2 = 64$
Find the diameter.

K

3

The radius is 6.
 $x^2 + y^2 = ?$

N

4

Find the radius.

I

5

$x^2 + y^2 = ?$

T

6

$x^2 + y^2 = 121$
Find a.

G

7

(6, a) is on $x^2 + y^2 = 100$.
Find a.

R

8

(b, -5) is on $x^2 + y^2 = 169$.
Find b.

W

9

Find the gradient of the radius to (3, 4).

R

10

Find the gradient of the tangent at (3, 4).

F

11

Find the gradient of the tangent at (-2, 6).

O

12

The tangent at (4, 2) crosses the y axis at (0, c). Find c.

I

13

The tangent at (2, -4) crosses the y axis at (0, c). Find c.

E

YOUR LETTERS

H

K

N

I

T

G

R

W

R

F

O

I

E

UNSCRAMBLE Clue: the fifth of November (8, 5) *FIREWORK NIGHT*

CODE BOX

-12 = W	-11 = G	-6 = D	-5 = E	-3 = C	8 = R	9 = H	10 = I	11 = S	12 = P
13 = L	16 = K	25 = T	36 = N	81 = M	$-\frac{4}{3} = B$	$\frac{1}{3} = O$	$\frac{4}{3} = R$	$-\frac{3}{4} = F$	$\frac{3}{4} = L$

