Angles on Parallel lines
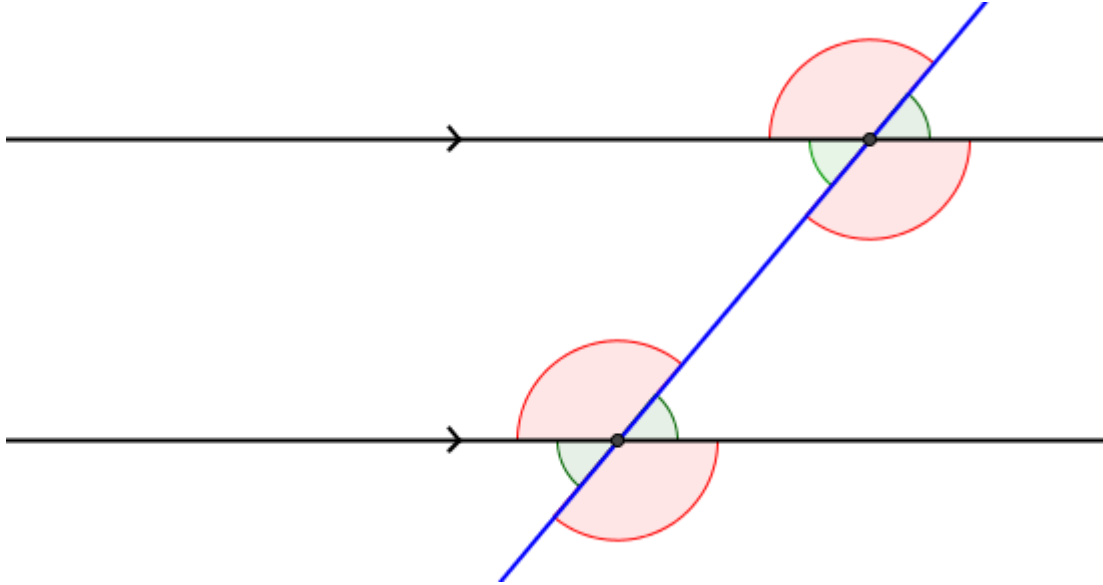
Fill in all 8 missing angles in the diagram using the clue below:

**Clue:** Every angle is either 50° or 130°.

Key point:

When **a line** crosses **a pair of parallel lines**, there are only *two* different angles, one **acute** and one **obtuse**.
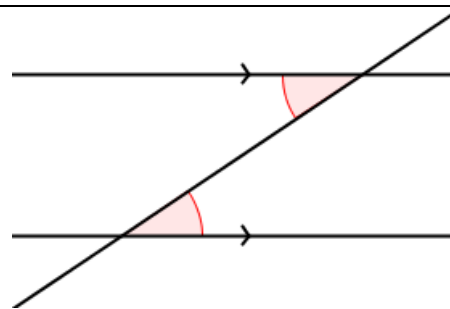
Recall these usual rules of angles (always true):

- *Angles around a point add up to 360°.*
- *Angles on a straight line add up to 180°.*
- *Where straight lines cross, opposite angles are equal.*
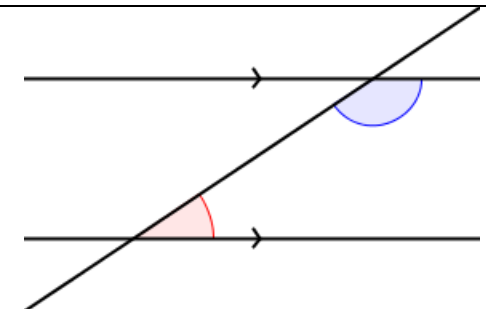
With parallel lines there are 3 more rules:

- **Corresponding** *angles are equal.*
- **Alternate** *angles are equal.*
- **Allied** *angles add up to 180°.*
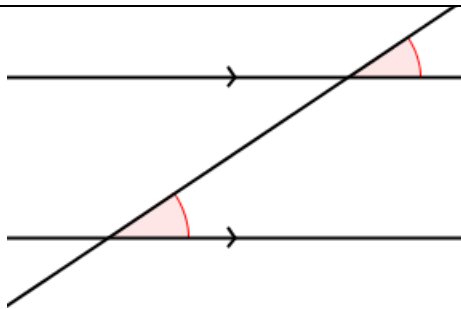
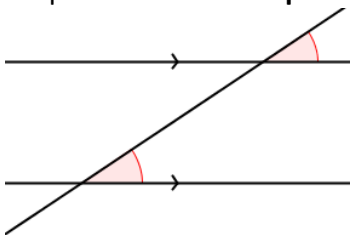Angles in **corresponding** positions are equal | Angles on **alternate** sides of the line are equal | Angles that are **allied** (one acute, one obtuse) go together to make 180°
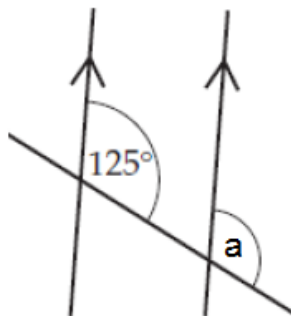
Angles on Parallel Lines

Oxford Street

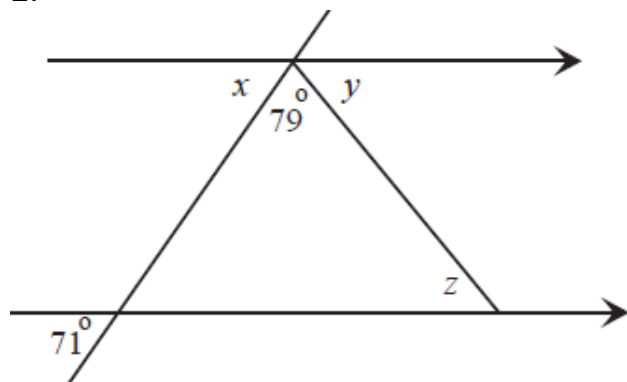Answer these questions on **corresponding** angles.

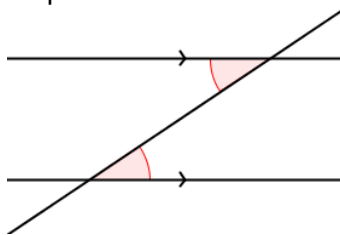*Corresponding angles on parallel lines are equal*

1.

$a =$

2.

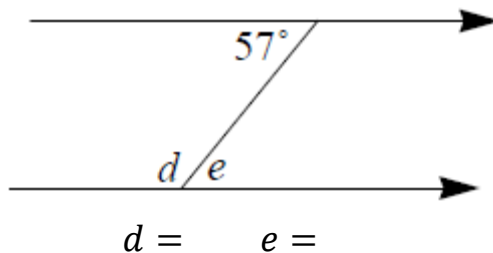$x =$ $y =$ $z =$

Score: /5   *Do you own this topic?*

Regent Street
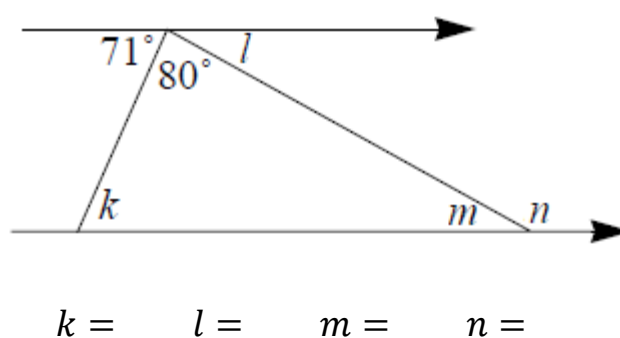
Answer these questions on **alternate** angles.

Alternate angles on parallel lines are equal

1.

$d =$ $e =$
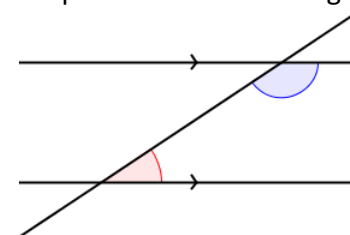
2.

$k =$ $l =$ $m =$ $n =$

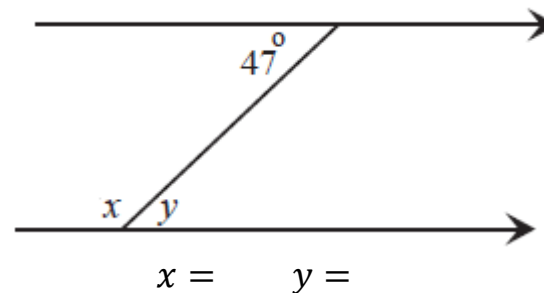**Score:**   /6   *Do you own this topic?*

Bond Street

Answer these questions on **allied** angles.

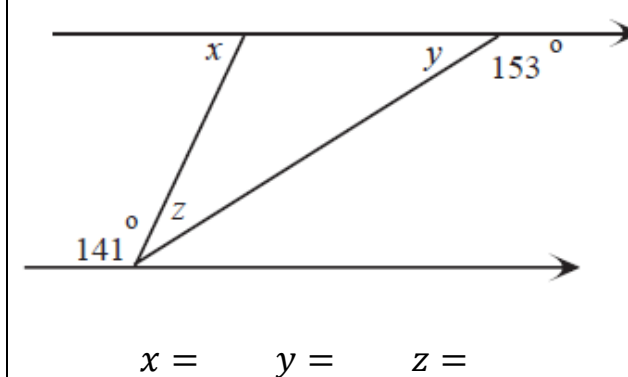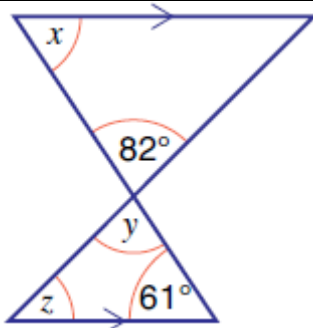*Allied angles on parallel lines add up to 180°*

1.

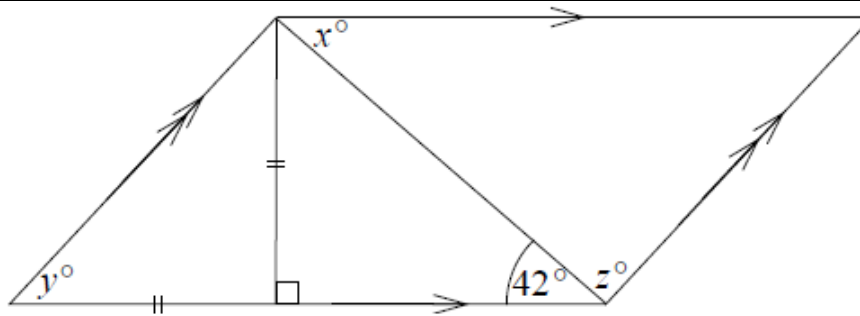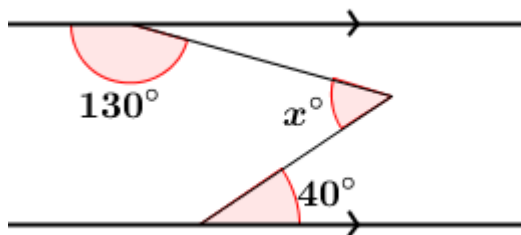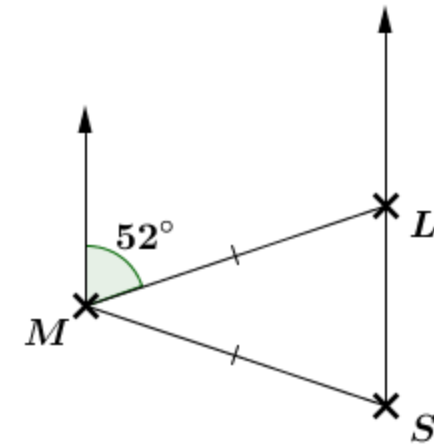$x =$ $y =$

2.

$x =$ $y =$ $z =$

Score: /5   *Do you own this topic?*

Angles on Parallel Lines Extension

A

B

C

D

The bearing of Leeds from Manchester is 052°.
The bearing of Sheffield from Leeds is 180°.
Leeds and Sheffield are the same distance away from Manchester.
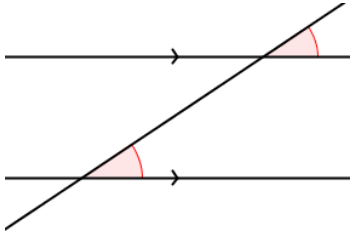

Find the bearing of Sheffield from Manchester.
The bearing of A from B is the angle you would need to turn, standing at B, from North clockwise to A.
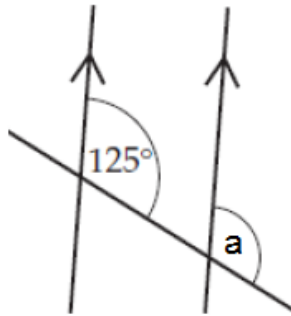
Angles on Parallel Lines SOLUTIONS

Oxford Street
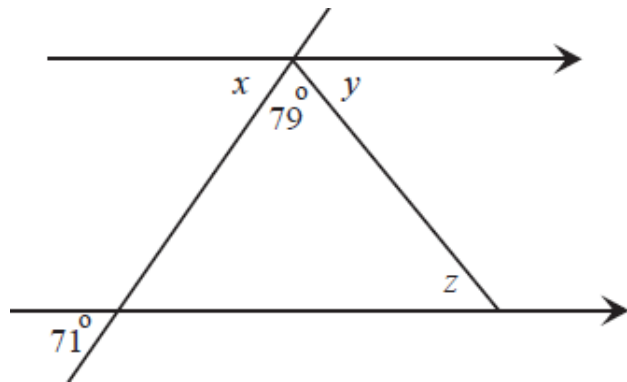
Answer these questions on **corresponding** angles.

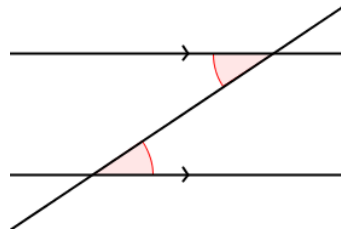*Corresponding angles on parallel lines are equal*

1.

$a = 125°$

2.

$x = 71°$ $y = 30°$ $z = 30°$
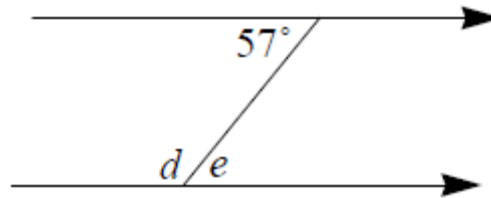
Score: /5   *Do you own this topic?*

Regent Street

Answer these questions on **alternate** angles.

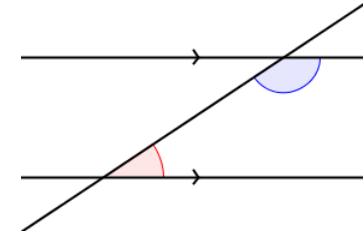*Alternate angles on parallel lines are equal*

1.

$d = 123°$ $e = 57°$

2.
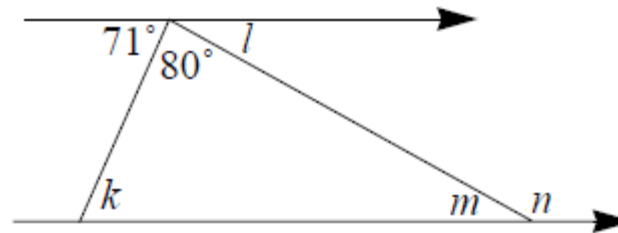
$k = 71°$ $l = 29°$ $m = 29°$ $n = 151°$
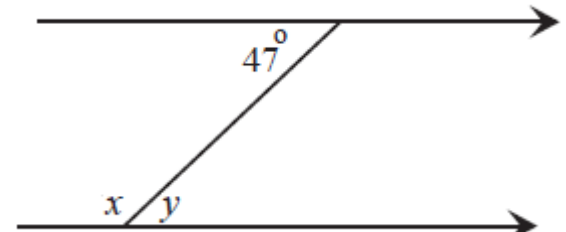
Score: /6   *Do you own this topic?*

Bond Street

Answer these questions on **allied** angles.

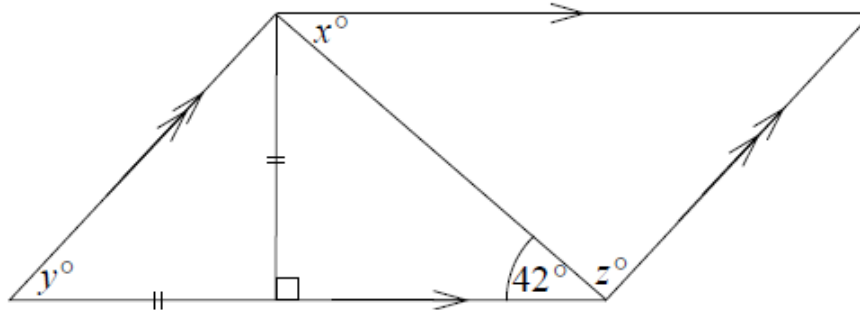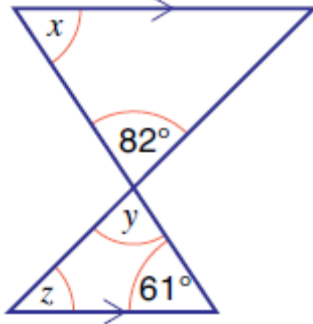*Allied angles on parallel lines add up to 180°*

1.

$x = 133°$ $y = 47°$

2.
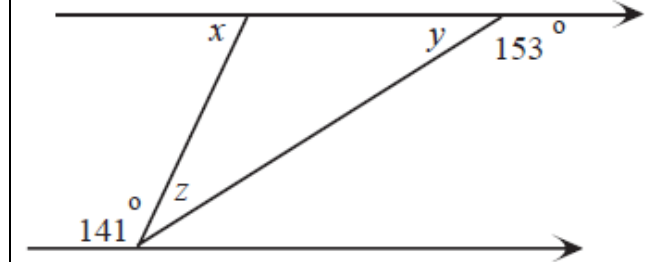
$x = 39°$ $y = 27°$ $z = 12°$

Score: /5   *Do you own this topic?*

Angles on Parallel Lines Extension **SOLUTIONS**

A

$x = 42°$ $y = 45°$ $z = 93°$

B

$x = 61°$ $y = 82°$ $z = 37°$

C

$x = 110°$

D
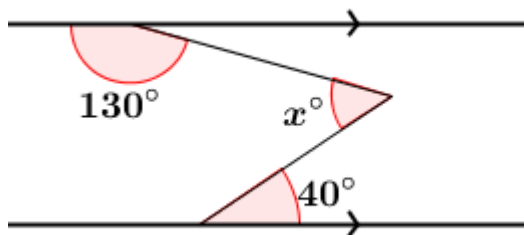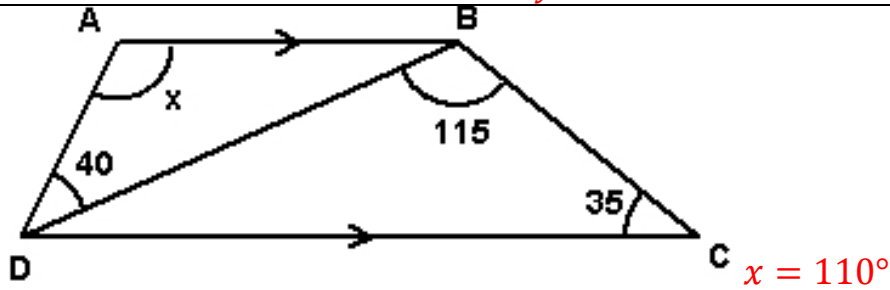
$x = 90°$

The bearing of Leeds from Manchester is 052°.
The bearing of Sheffield from Leeds is 180°.
Leeds and Sheffield are the same distance away from Manchester.
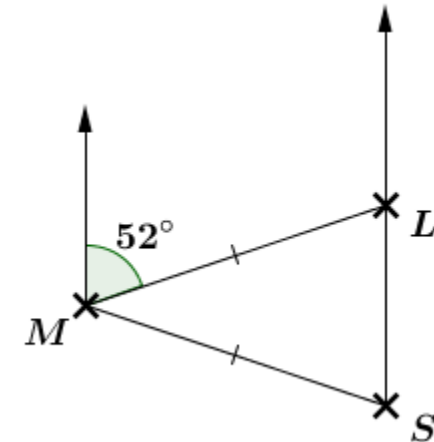
Find the bearing of Sheffield from Manchester.
The bearing of A from B is the angle you would need to turn, standing at B, from North clockwise to A.

Bearing: 128°