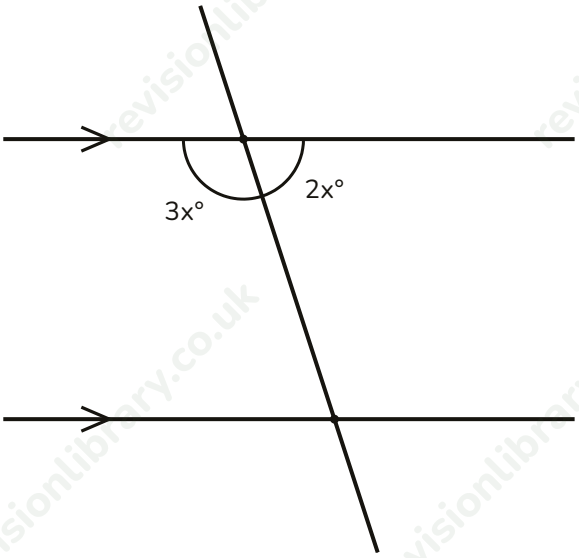
4.9 Angles in Parallel Lines: 1-hour Pack

Calculators not allowed · about 60 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

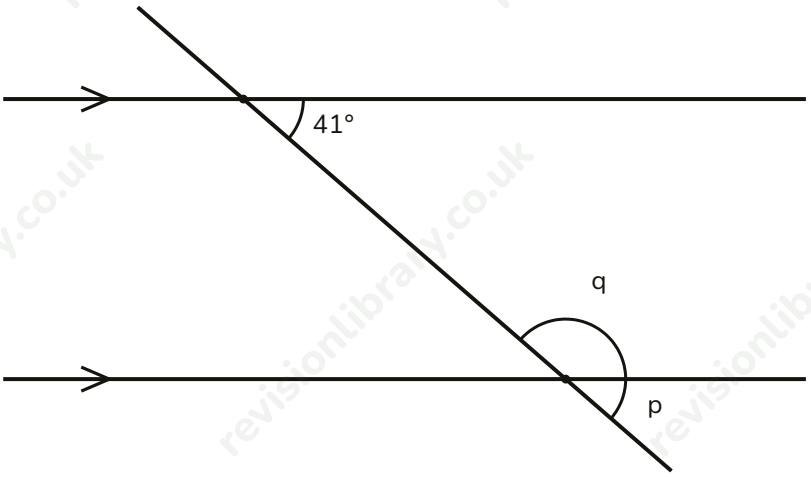
1 Two parallel lines are cut by a transversal. Angles at one intersection are labelled 2x and 3x where they are adjacent. Find x and the four angles at that intersection.



(3)

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2 A transversal cuts two parallel lines. At one intersection an angle next to the transversal is 41 degrees. At the other intersection the corresponding angle is p and the interior on the same side is q. Find p and q.



(2)

3 Two parallel lines are crossed by a third straight line. One angle is 81°. The angle marked x is between the parallel lines on the same side of the transversal (a C or U shape). Work out the size of x, and give a reason for your answer.

(3)

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4 Two parallel lines are crossed by a straight line. A pair of alternate angles are $(4x + 5)°$ and $(x + 35)°$.
Work out the value of x and the size of each angle.

(4)

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5 Two parallel lines are crossed by a third straight line. One angle is 106°. The angle marked x is on the opposite side of the transversal in between the parallel lines (a Z shape).
Work out the size of x, and give a reason for your answer.

(3)

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6 Angles on a straight line meet at a point. One angle is 49°. Work out the other angle.

(2)

---

7 Four angles meet at a point. Three of them are 76°, 66° and 90°. Work out the fourth angle. Give a reason for your answer.

(3)

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8 Two straight lines cross. One of the angles formed is 38°. Write down the size of the angle opposite it and give a reason.

(2)

9 Two parallel lines are crossed by a straight line. A pair of alternate angles are (3x + 10)° and (2x + 26)°.
Work out the value of x and the size of each angle.

(4)

10 Four angles meet at a point. Three of them are 62°, 60° and 90°. Work out the fourth angle. Give a reason for your answer.

(3)

11 Three angles meet on a straight line. Two of them are 26° and 42°. Work out the third angle.

(2)

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12 Four angles meet at a point. Three of them are 23°, 47° and 90°. Work out the fourth angle. Give a reason for your answer.

(3)

---

13 Two parallel lines are crossed by a straight line. A pair of co-interior angles are $(2x + 5)°$ and $(x + 85)°$.
Work out the value of x.

(3)

---

14 Two parallel lines are crossed by a third straight line. One angle is 98°. The angle marked x is between the parallel lines on the same side of the transversal (a C or U shape).
Work out the size of x, and give a reason for your answer.

(3)

---

15 Two parallel lines are cut by a transversal. State whether corresponding angles are equal or supplementary.

(1)

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16 Two parallel lines are cut by a transversal. One angle is labelled 61 degrees. A different angle at the same intersection, vertically opposite to it, is labelled z. Find z.

(2)

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17 Two parallel lines are cut by a transversal. At one intersection, two angles on the same straight line are 3x degrees and 2x degrees. Find x, and hence find the size of the angle that is corresponding to the 3x angle at the other intersection.

(3)

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Mark scheme · 4.9 Angles in Parallel Lines: 1-hour Pack

Question 1

set up equation 2x + 3x = 180 or identify they are supplementary	M1
calculate x = 36	M1
angles: 2x=72, 3x=108, opposite angles equal so 72,108,72,108 cao	A1

Answer: **x = 36; angles 72, 108, 72, 108**

Question 2

identify p = 41 by corresponding angles	M1
p = 41, q = 139 degrees with brief reason cao	A1

Answer: **p = 41 degrees, q = 139 degrees**

Question 3

correct angle fact identified	M1
99° cao	A1
co-interior angles add up to 180 degrees	B1

Answer: **99° (co-interior angles add up to 180 degrees)**

Question 4

4x + 5 = x + 35	M1
x = 10	A1
substitutes x = 10	M1
45° cao	A1

Answer: **x = 10, each angle is 45°**

Question 5

correct angle fact identified	M1
106° cao	A1
alternate angles are equal	B1

Answer: **106° (alternate angles are equal)**

Question 6

180 - 49	M1
131° cao	A1

Answer: **131°**

Question 7

360 - 76 - 66 - 90 or 360 - 232	M1
128° cao	A1
angles around a point add up to 360 degrees	B1

Answer: **128° (angles around a point add up to 360°)**

Question 8

38°	B1
vertically opposite angles are equal	B1

Answer: **38° (vertically opposite angles are equal)**

Question 9

3x + 10 = 2x + 26	M1
x = 16	A1
substitutes x = 16	M1
58° cao	A1

Answer: **x = 16, each angle is 58°**

Question 10

360 - 62 - 60 - 90 or 360 - 212	M1
148° cao	A1
angles around a point add up to 360 degrees	B1

Answer: **148° (angles around a point add up to 360°)**

Question 11

180 - 26 - 42 or 180 - 68	M1
112° cao	A1

Answer: **112°**

Question 12

360 - 23 - 47 - 90 or 360 - 160	M1
200° cao	A1
angles around a point add up to 360 degrees	B1

Answer: **200° (angles around a point add up to 360°)**

Question 13

sum of the angles = 180	M1
3x + 180 + ... simplified to a single equation in x	M1
x = 30 cao	A1

Answer: **x = 30**

Question 14

correct angle fact identified	M1
82° cao	A1
co-interior angles add up to 180 degrees	B1

Answer: **82° (co-interior angles add up to 180 degrees)**

Question 15

equal	B1

Answer: **Equal**

Question 16

uses vertically opposite angles are equal	M1
z = 61 degrees cao	A1

Answer: **61 degrees**

Question 17

uses 3x + 2x = 180	M1
x = 36, so the 3x angle = 108 degrees	A1
corresponding angle = 108 degrees cao	A1

Answer: **x = 36; corresponding angle = 108 degrees**

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