Chapter 8

Check in

1 DGH and FHE

2 a $a = 38°$ b $b = 57°$ c $c = 77°$ d $d = 78°$
   e $e = 77°$ f $f = 21°$ g $g = 107°$ h $h = 40°$

Exercise 8A

1 a $a = 55°$ b $b = 115°$ c $c = 77°$
   d $d = 121°$ e $e = 120°$ f $f = 31°$

2 c

3 $(2x + 20)°$

4 a $g = 51°$ b $f = 51°$

5 a 35   b 3

6 $x = 110°$

Exercise 8B

1 a $a = 35°, b = 145°$
   b $c = 137°, d = 43°, e = 137°, f = 43°$
   c $g = 118°, h = 118°, i = 62°$

2 a 30°; vertically opposite
   b 30°; alternate
   c 150°; corresponding

3 a $a = 77°, b = 106°$
   b $c = 52°, d = 128°, e = 128°, f = 52°$
   c $g = 132°, h = 48°, i = 132°$
   d $j = 63°, k = 63°, l = 117°$

4 $a = 56°, b = 124°, c = 56°, d = 85°, e = 85°, f = 95°$

5 The second and the third, as the first should be parallel lines with the given angles.

6 a $a = 122°, b = 58°, c = 122°$
   b $d = 78°, e = 102°$
   c $f = 23°, g = 31°, h = 126°, i = 126°$

7 Haib is correct, it is not a trapezium because $115 + 75 = 190$ not 180.

8 Yes because angles on a straight line add up to 180° so the two angles on a straight line next to 30° add up to 150° and this corresponds to the other angle of 150° so they must be parallel. (Note other geometric reasons are possible.)

7 38°, 142°, 38°

8 a $x = 30, y = 60$
   b $n = 36, m = 108, p = 72$
   c $t = 20, u = 40, v = 140, w = 40$

Exercise 8

1 a $a = 46°$ b $b = 41.5°$ c $c = 119°$ d $d = 51°$

2 $a = b = 90°, c = 81°, d = e = 85°, f = 86°$

3 a 35°   b 55°   c 70°

4 60°

5 a $a = .68°, b = 112°, c = 101°$
   b $d = 143°, e = 37°, f = 143°$

6 a $a = 65°, b = 115°$
   c $e = 92°$

7 $x + y + c = 180°$ because angles on a straight line add up to 180°.
$x = a$ because alternate angles are equal
$y = b$ because alternate angles are equal
So $x + y + c = a + b + c = 180°$
Therefore the angles of a triangle always add up to 180°.

8 a $x = 70°, y = 125°, z = 125°$
   b $s = 55°, p = 70°, t = 55°$
   c $a = 50°, b = 50°, c = 130°$
   d $a = 115°, b = 50°$

9 a $b = 30°, a = c = 150°$
   b $e = 110°, d = f = 70°$
   c $h = 45°, i = g = 135°$

Summary
Check Out

1 a $= 80°$ b $= 66°$

2 a $a = 38°, b = 142°$ b $c = 64°, d = 116°$

3 $a + b + c = 180°$ because angles in triangle add up to 180°
$b + x = 180°$ because angles on a straight line add up to 180°
$a + b + c = b + x$ because they both equal 180°
Subtracting b from both sides gives us: $a + c = x$

4 $a = 120°, b = c = 60°, d = e = 80°$

Answer Key Chapter 8

Homework book

8A

1 131°
2 27°, 78°
3 77°
4 119°
5 160°, 120°, 80°
6 64°
7 $2x + 15 = 120$ so $x = 52.5$

8B

1 $x = 62, y = 118$
2 **a** 55°, 55°   **b** 118°, 118°   **c** 105°, 141°
   d 60°, 120°   **e** 45°, 135°, 93°   **f** 76°
3 75°, 35°, 70°
4 68°, 68°, 112°

No, co-interior angles of a parallelogram add up to 180° and these add up to 178°