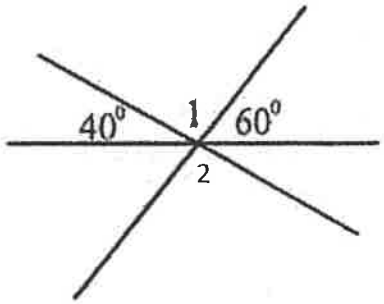
## Section 4.1 – Practice Problems

For the following questions, solve for the missing angles and give the reason.

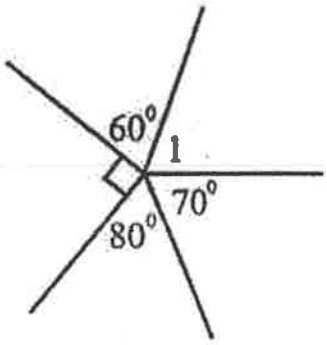
1.




$\angle 1 =$ 80°, Angles on a line add to 180°

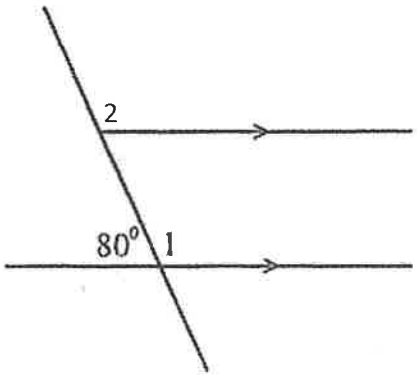
$\angle 2 =$ 80°, Vertical Angles

2.




$\angle 1 =$ 60°, Angles in a circle add to 360°

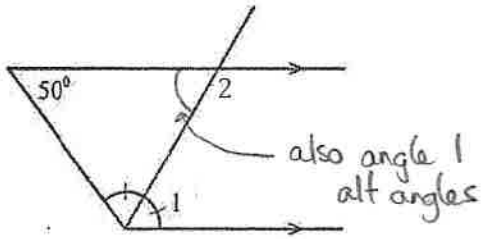
3.




$\angle 1 =$ 100°, Supplementary

$\angle 2 =$ 100°, Corresponding Angles

4.




$\angle 1 =$ 65°, Alt. Angles, angle bisector

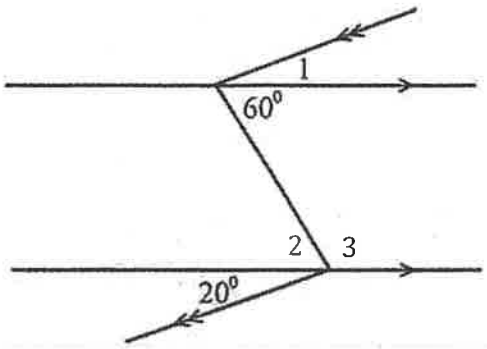
$\angle 2 =$ 115°, Co-interior add to 180°

$2\angle 1 + 50 = 180$

$2\angle 1 = 130$

$\angle 1 = 65°$

5.

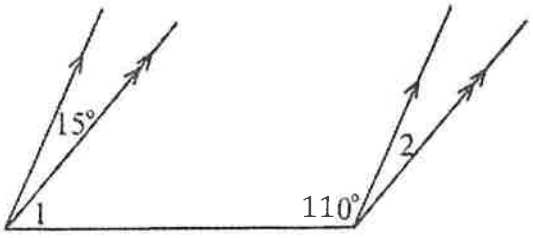



$\angle 1 =$ 20°, alt interior with 20°

$\angle 2 =$ 60°, alt. interior angles

$\angle 3 =$ 120°, supplemadry with $\angle 2$

6.




$\angle 1 =$ 55°, co-interior

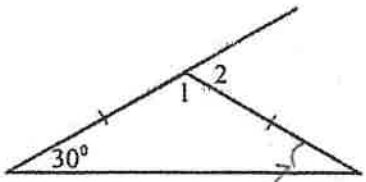
$\angle 2 =$ 15°, co-interior angles

$\angle 1 + 15 + 110 = 180$

$\angle 1 + 125 = 180$

$\angle 1 = 55$

7.

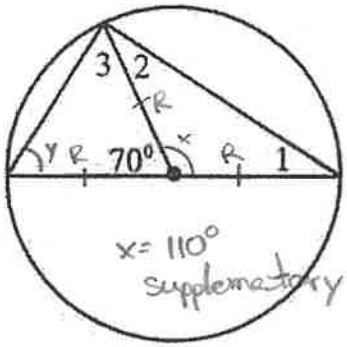



Isosceles so 30°

∠1 = 120°, Angles in a triangle

∠2 = 60°, Supplementary

8.




r: radius

∠1 = 35°, Isosceles c d angles in triangle

∠2 = 35°, " " " "

∠3 = 55°, Angles in a triangle

∠1 = ∠2 Isosceles

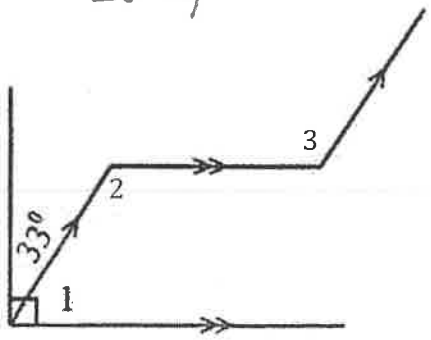
∠1 + ∠2 + 110 = 180 → ∠1 + ∠2 = 70

∠1 = 35

∠3 = ∠y so ∠3 + 70 = 180 → ∠3 = 55°

9.

a



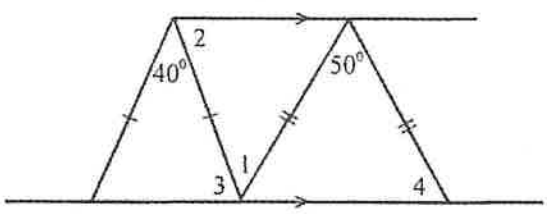

∠1 = 57°, complementary

∠2 = 123°, co-interior angles

∠3 = 123°, alt. interior angles

10.

10




∠3 + 40 = 180 ∠4 + 50 = 180

∠3 = 140 ∠4 = 130

∠3 = 70 ∠4 = 65°

∠1 = 45°, angles on a line

∠2 = 70°, co-interior with ∠1 + ∠4

∠3 = 70°, Isosceles, angles in triangle

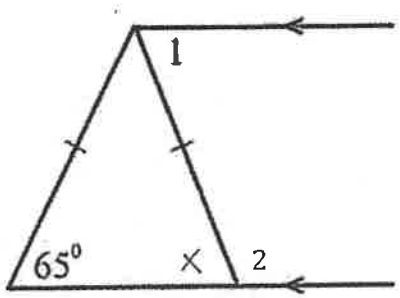
∠4 = 65°,

∠3 + ∠1 + ∠4 = 180

∠1 = 45

∠1 + ∠4 + ∠2 = 180 → ∠2 = 70°

11.



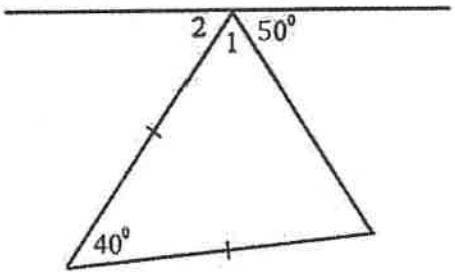

∠1 = 65°, co-interior

∠2 = 115, Isosceles, supplementary

X = 65° ∠2 = 115

∠2 + 65 = 180

12.




∠1 = 20°, Isosceles

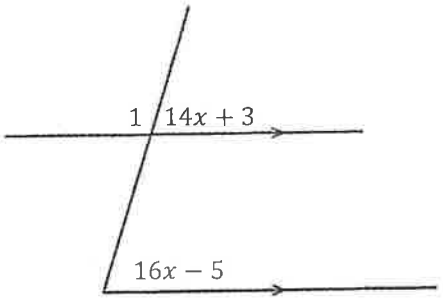
∠2 = 110°, Supplementary

180 − 40 = 2∠1

140 = 2∠1 ∠1 = 70°

13.

18




∠1 = 121°, supplementary and corresponding angles

16x − 5 = 14x + 3

2x = 8

x = 4

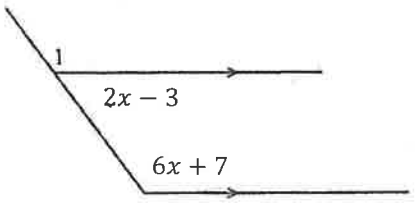
∠1 + (14(4) + 3) = 180

∠1 + 59 = 180

∠1 = 121

14.

19




$\angle 1 =$ 139°, corresponding angles

$2x - 3 + 6x + 7 = 180$

$8x + 4 = 180 \longrightarrow 8x = 176$

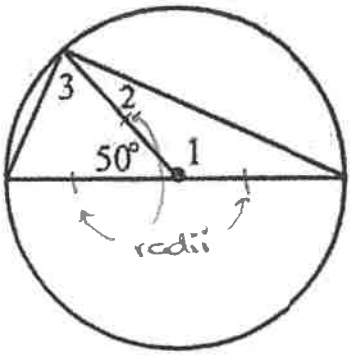
$x = 22$

$\angle 1 = 6x + 7$ (corresponding angles)

$\angle 1 = 6(22) + 7$

26

15.




$\angle 1 =$ 130°, supplementary

$\angle 2 =$ 25°, Isosceles

$\angle 3 =$ 65°, Isosceles

$2\angle 3 + 50 = 180$

$\angle 3 = \frac{130}{2} = 65°$

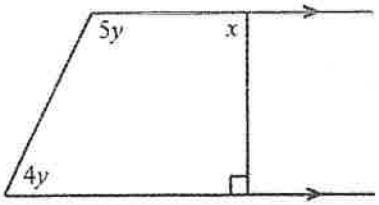
$2\angle 2 + \angle 1 = 180$

$2\angle 2 = 50$

$\angle 2 = 25$

35

16.




$\angle 1 =$ 100°, co-interior

$\angle 2 =$ 80°, "

$x = 90°$ co-interior

$4y + 5y = 180$

$9y = 180$

$y = 20$