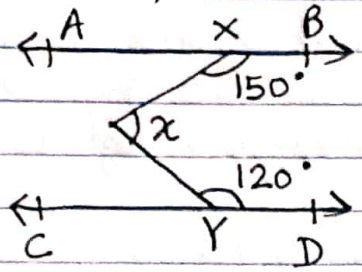
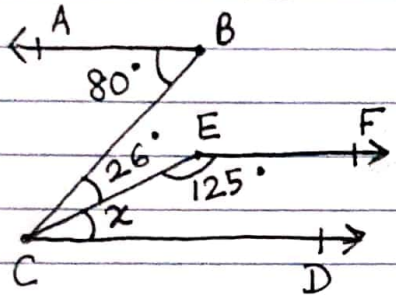
IX Elite work – 11 (Lines and Angles)

1) 

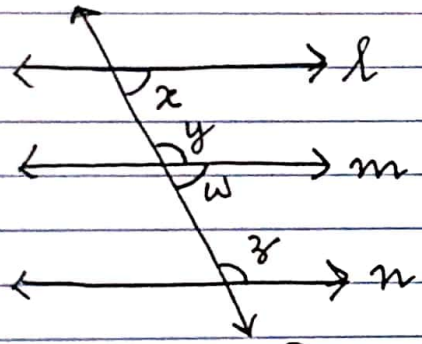
AB || CD, then the value of x is

(a) 65° (b) 80° (c) 85° (d) 90°

2) 

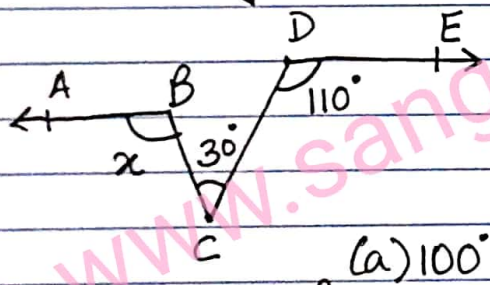
If EF || CD || AB, then the measure of x is:

(a) 35° (b) 52° (c) 55° (d) 60°

3) 

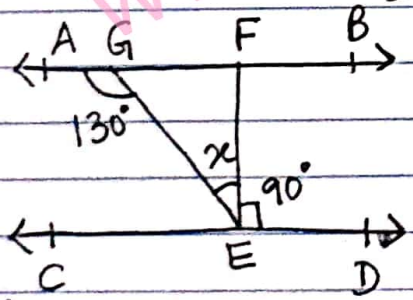
l || m, m || n and w : z = 1 : 2, then the value of x is:

(a) 60° (b) 55° (c) 52° (d) 50°

4) 

If AB || DE, ∠BCD = 30° and ∠CDE = 110°, then the value of x is

(a) 100° (b) 110° (c) 115° (d) 120°

5) 

If AB || CD, EF ⊥ CD and ∠AGE = 130° then the value of x is

(a) 35° (b) 40° (c) 45° (d) 50°

6) If two adjacent angles on a straight line are in the ratio 6:3, then the measure of the greater angle is:
(a) 100° (b) 60° (c) 120° (d) 125°

7) If two supplementary angles differ by 28°, then the angles are:
(a) 100°, 80° (b) 78°, 102° (c) 76°, 104° (d) 80°, 105°

8) If one third of an angle is equal to its supplement, then the measure of the angle is:
(a) 135° (b) 125° (c) 110° (d) 105°

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9) Two complementary angles are such that two times the measure of one is equal to three times the measure of the other. The measure of the smaller angle is:

(a) 30° (b) 36° (c) 40° (d) 42°

10) In $\triangle PQR$, if $\angle PQR = \angle QPR + \angle PRQ$, then $\angle PQR =$

(a) 60° (b) 75° (c) 90° (d) 100°

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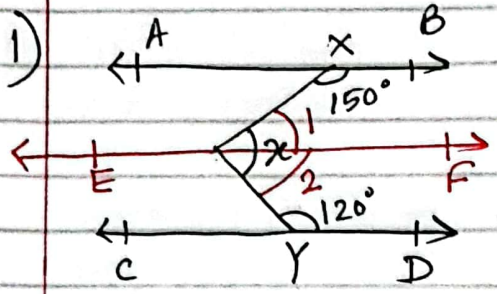
1)



$\angle 1 + 150^\circ = 180^\circ$ (Cointerior angles)

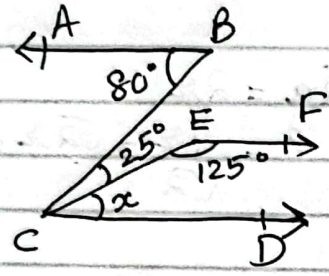
$\therefore \angle 1 = 30^\circ$ //

$\angle 2 + 120^\circ = 180^\circ$ (Cointerior angles)

$\therefore \angle 2 = 60^\circ$ //

Thus, $x = \angle 1 + \angle 2 = 30^\circ + 60^\circ = 90^\circ$ (d)

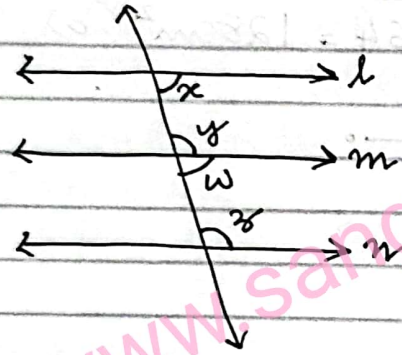
2)



$x + 125^\circ = 180^\circ$ (Co-interior angles)

$\therefore x = 180^\circ - 125^\circ = 55^\circ$ (c)

3)



$w + z = 180^\circ$ (Co-interior angles)

$\Rightarrow a + 2a = 180$

$\Rightarrow 3a = 180$

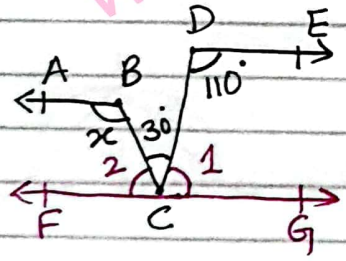
$a = \frac{180}{3} = 60^\circ$

Thus, $w = a = 60^\circ$

$\therefore x = w = 60^\circ$ (corresponding angles)

(a)

4)



Construction: draw FG || AB || DE

$\angle 1 + 110^\circ = 180^\circ$ (co-interior angles)

$\angle 1 = 180^\circ - 110^\circ = 70^\circ$ //

$\angle 1 + \angle 2 + 30^\circ = 180^\circ$ (angles on a straight line)

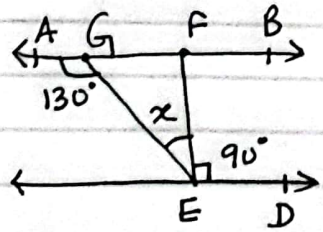
$\therefore \angle 2 = 180^\circ - (70^\circ + 30^\circ)$

$= 180^\circ - 100^\circ = 80^\circ$

$\therefore x + \angle 2 = 180^\circ$ (co-interior angles)

$x = 180^\circ - 80^\circ = 100^\circ$ (a)

5)



$\angle AGE = \angle GED$ (alternate interior angles)

$= 130^\circ$

$x = 130^\circ - 90^\circ = 40^\circ$ (b)

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6) $6x + 3x = 180^\circ$ (linear pair)

$9x = 180^\circ$

$x = \frac{180^\circ}{9} = 20^\circ$

$\therefore$ measure of the greater angle $= 6x = 6 \times 20^\circ = 120^\circ$ (c)

7) Let the supplementary angles be x and $180^\circ - x$

Then, $180^\circ - x - x = 28^\circ$

$\Rightarrow \quad -2x = 28^\circ - 180^\circ$

$\Rightarrow \quad -2x = -152$

$\therefore \quad x = \frac{152}{2} = 76^\circ$

$76^\circ, 104^\circ$ (c)

8) Let the angle be x.

Then, $\frac{1}{3}x = 180^\circ - x$

$\Rightarrow x = 3(180^\circ - x)$

$\Rightarrow x = 540^\circ - 3x$

$\Rightarrow 4x = 540^\circ$

$\therefore x = \frac{540^\circ}{4} = 135^\circ$ (a)

9) Let the complementary angles be x° and $(90 - x)^\circ$.

Then, $2x = 3(90^\circ - x)$

$\Rightarrow 2x = 270 - 3x$

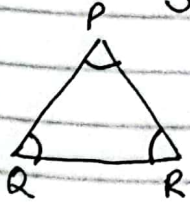
$\Rightarrow 5x = 270$

$\therefore x = \frac{270}{5} = 54^\circ$

Thus, the complementary angles are 54° and $90^\circ - 54^\circ = 36^\circ$

36° (b) is the smaller angle.

10)



Using angle sum property in $\triangle PQR$,

$\angle PQR + \angle QPR + \angle PRQ = 180^\circ$

$\Rightarrow \angle PQR + \angle PQR = 180^\circ \quad [\because \angle PQR = \angle QPR + \angle PRQ]$

$\Rightarrow \quad 2\angle PQR = 180^\circ \Rightarrow \angle PQR = 90^\circ$ (c)

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