

Worksheet 2015-8EM-00004(1)

- (1) Each of the following statements is incorrect. Correct the statement by writing the correct version:

- (a) Corresponding angles are always equal.

Corresponding angles are only equal if it is formed by parallel lines.

- (b) A straight angle is greater than 180° .

A straight angle is equal to 180° .

- (c) A revolution is double the size of a right angle.

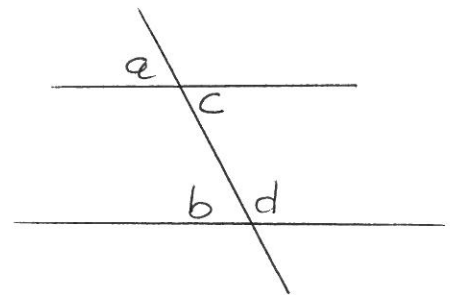
A revolution is four times the size of a right angle. $[4 \times 90^\circ = 360^\circ]$

- (2) Draw a sketch to describe the following: corresponding angles, alternate angles and co-interior angles.

* a and b are corresp. $\angle^s$

* b and c are alternate $\angle^s$

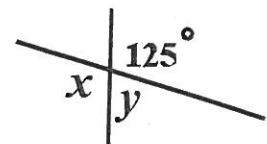
* c and d are co-int. $\angle^s$



- (3) Determine the value(s) of x and/or y in each of the following sketches. Also give complete reasons.

- (a)

$x = 125^\circ$ [vert. opp. $\angle^s$]



$y + 125^\circ = 180^\circ$ [$\angle^s$ on str. line]

$\therefore y = 180^\circ - 125^\circ$

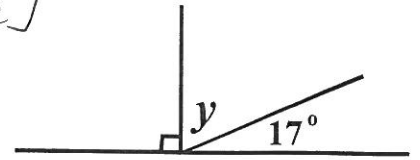
$\therefore y = 55^\circ$

(b)

$$90^\circ + y + 17^\circ = 180^\circ \text{ [}\angle^s \text{ on str. line]}$$

$$\therefore y = 180^\circ - 90^\circ - 17^\circ$$

$$y = 73^\circ$$



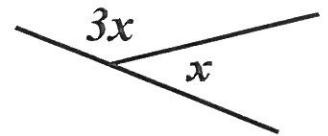
(c)

$$3x + x = 180^\circ \text{ [}\angle^s \text{ on str. line]}$$

$$\therefore 4x = 180^\circ$$

$$\therefore x = \frac{180^\circ}{4}$$

$$\therefore x = 45^\circ$$



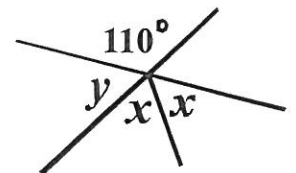
(d)

$$y + 110^\circ = 180^\circ \text{ [}\angle^s \text{ on str. line]}$$

$$\therefore y = 180^\circ - 110^\circ = 70^\circ$$

$$2x = 110^\circ \text{ [vert. opp. }\angle^s \text{]}$$

$$\therefore x = \frac{110^\circ}{2} = 55^\circ$$

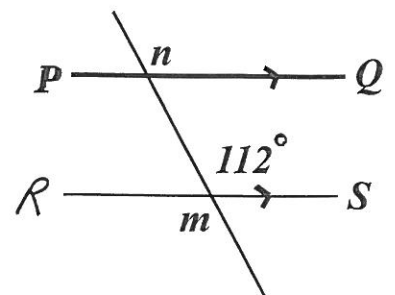


(4) Determine the value(s) of m , n and/or k in each of the following sketches. Also give complete reasons.

(a)

$$m = 112^\circ \text{ [Vert. opp. }\angle^s \text{]}$$

$$n = 112^\circ \text{ [corresp. }\angle^s \text{; } PQ \parallel RS \text{]}$$



(b)

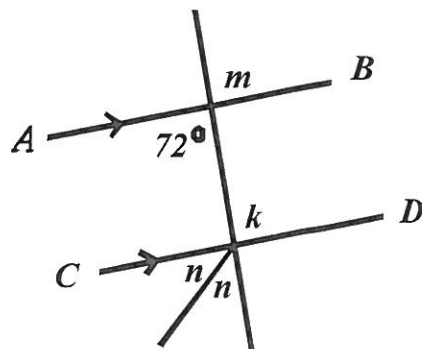
$$n + n = 72^\circ \quad [\text{corresp } \angle^s; AB \parallel CD]$$

$$\therefore 2n = 72^\circ$$

$$n = \frac{72^\circ}{2} = 36^\circ$$

$$k = 72^\circ \quad [\text{alt. } \angle^s; AB \parallel CD]$$

$$m = 72^\circ \quad [\text{Vert. opp } \angle^s]$$



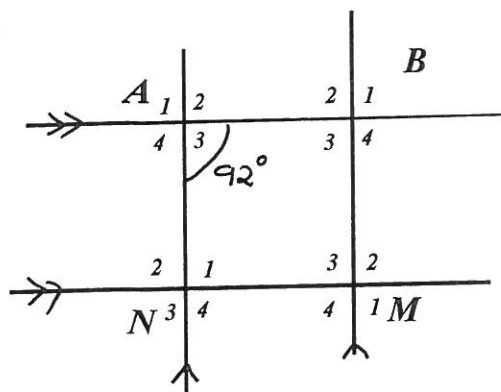
(5) In the sketch $AB \parallel NM$ and $AN \parallel BM$.

$$\hat{BAN} = 92^\circ$$

Calculate, with reasons. Show all calculations.

(a) $\hat{B}_1$

(b) $\hat{M}_1$



$$(a) \hat{A}_3 = \hat{B}_2 = 92^\circ \quad [\text{alt. } \angle^s; AN \parallel BM]$$

$$\text{but } \hat{B}_2 + \hat{B}_1 = 180^\circ \quad [\angle^s \text{ on str. line}]$$

$$\therefore 92^\circ + \hat{B}_1 = 180^\circ$$

$$\therefore \hat{B}_1 = 180^\circ - 92^\circ$$

$$\therefore \hat{B}_1 = 88^\circ$$

$$(b) \hat{N}_4 = \hat{A}_3 = 92^\circ \quad [\text{corresp. } \angle^s; AB \parallel NM]$$

$$\text{but } \hat{N}_4 = \hat{M}_1 \quad [\text{corresp. } \angle^s; AN \parallel BM]$$

$$\therefore \hat{M}_1 = 92^\circ$$

(6) Prove that $AB \parallel CD$ in each of the following sketches. Show all calculations:

(a)

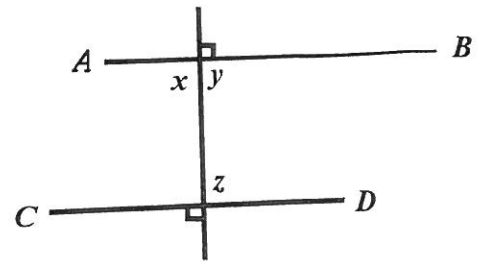
$$x = 90^\circ \text{ [Vert. opp. } \angle^s \text{]}$$

$$z = 90^\circ \text{ [Vert. opp. } \angle^s \text{]}$$

$$\therefore x = z = 90^\circ$$

but these are alt. $\angle^s$

$$\therefore AB \parallel CD$$



(b)

$$x = 51^\circ \text{ [corresp. } \angle^s, PR \parallel SQ \text{]}$$

$$t = 129^\circ \text{ [Vert. opp. } \angle^s \text{]}$$

$$\therefore x + t = 51^\circ + 129^\circ = 180^\circ$$

but these are co-int. $\angle^s$

$$\therefore AB \parallel CD$$

