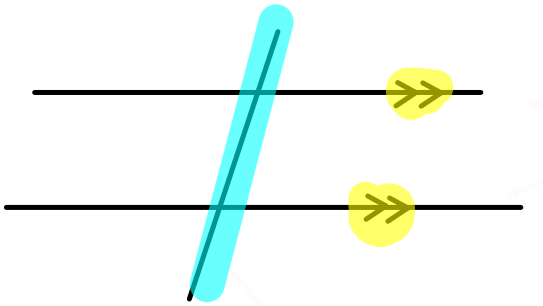
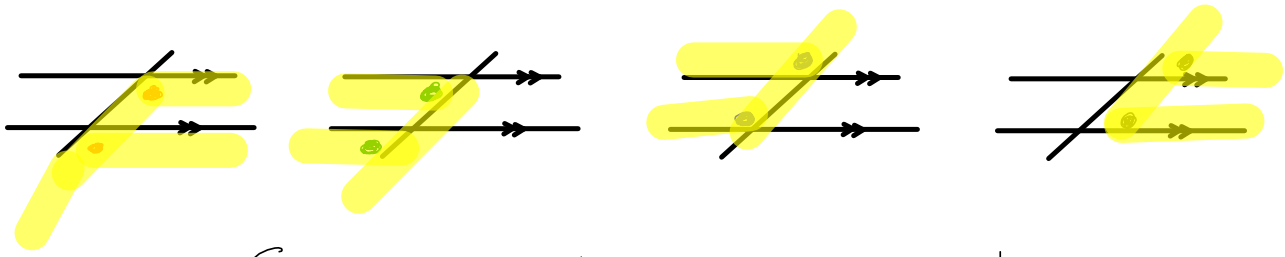
6.3 Angles Involving Parallel Lines



There are <u>three</u> patterns that show relationships between angles created by a transversal crossing parallel lines:

#1: <u>F-Pattern</u>: Corresponding angles are <u>equal</u>.

Corresponding angles have the same <u>position</u> with respect to the transversal and the parallel lines.



Same position ⇒ equal

#2: Z-Pattern: Alternate angles are equal.

Alternate angles lie between the parallel lines on opposite sides of the transversal.

EQUAL

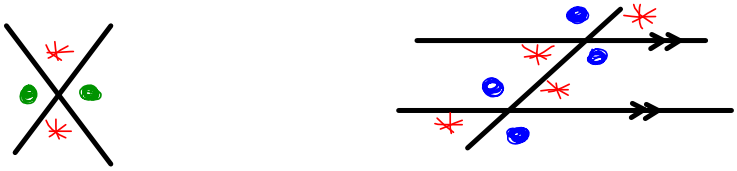
#3: C-Pattern: Interior angles add to 180°.

Interior angles lie between the parallel lines on the same side of the transversal.

$x + y = 180°$

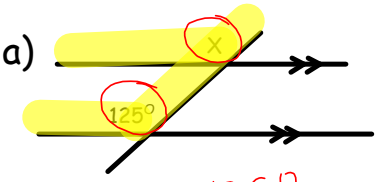
☆ Another angle relationship: Opposite angles are equal.

When two lines intersect, pairs of opposite angles are created.



Ex. 1: Find x. Justify your answers.

a)



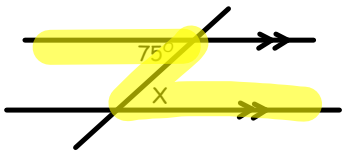
$x = 125°$

F-pattern

or

Same position corresponding angles

b)



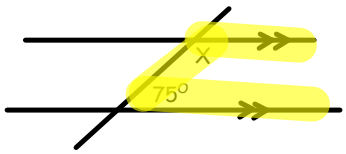
$x = 75°$

Z pattern

or

opposite sides

c)

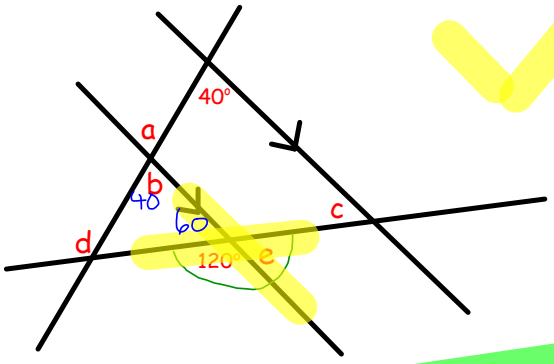


$x = 180 - 75$

$= 105°$

C-pattern

Ex. 2: Find all missing angles. Show work and justify your answers.



$a = 40°$

Z-Pattern

$b = 40°$

opposite

TIP

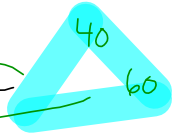
You do not have to find the angles in alphabetical order!

$e = 180 - 120$

$= 60°$

straight angle

outs

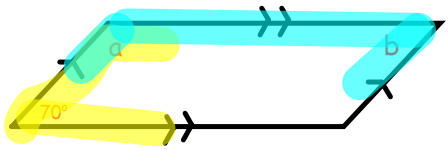


$d = 40 + 60$

$= 100°$

$c = 60°$ Z pattern

Ex. 3: Find the missing angles.



$a = 180 - 70$

$= 110°$

C - pattern

$b = 180 - 110$

$= 70^0$

C - pattern

1. p. 89 #2, 4, 5, 6
2. Mini Homework Handout (to be marked and returned).