SHRI DHARMASTHALA MANJUNATHESHWARA SCHOOL, MANGALURU
Grade: VIII WORKSHEET - 3 SOLUTIONS
CHAPTER 3 : UNDERSTANDING QUADRILATERALS

1) In the given figure
Exterior angle + Interior angle = **180°** (Linear pair).
$x+60° = 180°$
$\Rightarrow x = 180° - 60°$
$\Rightarrow$ **$x = 120°$**

$y + 80° = 180°$
$\Rightarrow y = 180° - 80°$
$\Rightarrow$ **$y = 100°$**

$z + 40° = 180°$
$\Rightarrow z = 180° - 40°$
$\Rightarrow$ **$z = 140°$**

2) In any parallelogram the lengths of opposite sides are equal.
AD = BC.
$3x = 18$
$\Rightarrow x = 18/3$
$\Rightarrow x = 6$

AB = DC.
$3y - 1 = 26$
$\Rightarrow 3y = 27$
$\Rightarrow y = 9$

3) At F the exterior is 70° so interior $\angle F = 180° - 70° = 110°$
$\angle F = \angle H =$ **$x = 110°$** (Opposite angles are equal)
Consecutive interior angles in a parallelogram are supplementary, so
$\angle E = 180° - 110° = 70°$
$\angle HEG =$ **$Y = 40°$** (alternative angles are equal)
$\angle z = 70° - 40°$
$\Rightarrow \angle Z = 30°$

4) $\angle D = \angle B = 114°$
Then $3y = 114°$
$\Rightarrow y = 114°/3$
$\Rightarrow y = 38°$
$\angle A + \angle D = 180°$
$42° + Z + 114° = 180°$
$Z = 180° - 156°$
$\Rightarrow Z = 24°$
Z = **$X = 24°$**(alternative angles are equal)

5) Exterior angle + Interior angle = **180°** (Linear pair).
z+100° =180°
⇒ z= 180° – 100°
⇒z=80°
Z+ y =180° (adjacent angles are supplementary)
80° + y =180°
⇒y= 180°-80°
⇒y=100°
y=**x=100°** (opposite angles are equal)

6) Exterior angle + Interior angle = **180°** (Linear pair).
x+120° = 180°
⇒x=180°-120°
x=60°

y+80° =180°
⇒y=180°-80°
y=100°

z+60°=180°
⇒z=180°-60°
z=120°

CBA+CDA=180°**(**opposite angles are supplementary)
80°+CDA=180°
⇒CDA=180°-80°
⇒CDA=100°

W+100°=180° **(** Exterior angle + Interior angle = **180°** (Linear pair))
⇒W=180°-100°
W=80°

7) Ratio of adjacent sides of a parallelogram = 5:4
Perimeter = 18 cm
Let the adjacent sides be 5x and 4x.
Perimeter=2(5x+4x)=2(9x)=18x
But perimeter is given =18 cm= 18
18x=18
⇒x=1

So,
5x=5×1=5 cm,4x=4×1=4 cm
The length of the adjacent sides = 5cm and 4cm

8) Exterior angle of a regular polygon = 360°/Number of sides
= 360°/10
= 36°
Each exterior angle = 36°

9) Each interior angle = 160°
Interior angle + Exterior angle=180°
Exterior angle=180°−160°=20°

Exterior angle=360°/number of sides
20° =360°/number of sides
⇒20°n =360°
⇒n =360°/20°
⇒n=18

The polygon has **18 sides**.

10) Interior angle + Exterior angle=180°
Let the **exterior angle** be 2x and the **interior angle** be 7x(because the ratio is 2:7).
2x+7x=180°
⇒9x=180°
⇒x=20°

So the **exterior angle** is:
2x=2×20°=40°

Exterior angle=360°/number of sides
40° =360°/n
⇒40°n=360°
⇒n=360°/40°
⇒n=9

The polygon has **9 sides**.