Unit 6 Geometry Test

Name: Solutions

Marking Scheme:

52

Knowledge/Understanding: Questions #1, 7
Application: Questions 2, 3, 5, 6,8
TIPS: Question #4, 9
Communication: ALL questions. **[10 marks total]**
An additional mark out of 10 will be awarded for communication. Your solutions should be organized and clear. You should justify your answers by referencing the appropriate theorems in geometry and show all calculations.

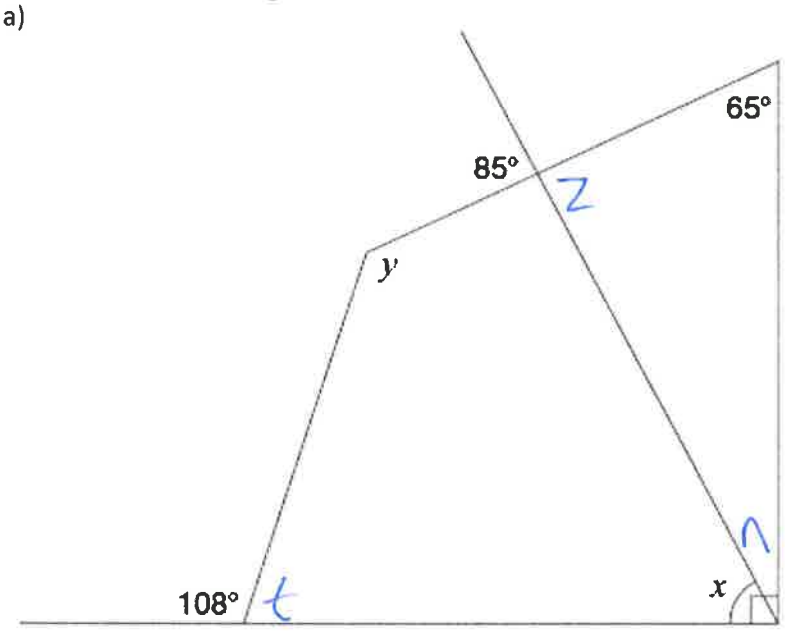
1. Melanie goes on a morning walk with her dog. This graph shows the relationship between Melanie's distance from her home and time.

Describe the four segments of Melanie's walk by completing the table below. **[6 marks]**

Segment	Distance travelled (m)	Time (min)	Speed (m/min)	Direction
a	250m	3	$\frac{250\text{ m}}{3\text{ min}} = 83\frac{1}{3}$ m/min	away from home
b	100m	4	$\frac{100\text{m}}{4\text{min}} = 25$ m/min	towards home
c	0m	5	0	no direction
d	150	7	$\frac{150\text{m}}{7\text{min}} = 21.42$ m/min	towards home.

2. Find the unknown values in each diagram below. (as indicated by lower-case letters). **[9 marks]**

a)



$z = 85°$ (opposite)

$n + 85 + 65 = 180°$ (AST)

$n = 30°$

$x + 30° = 90°$ (comp)

$x = 60°$

$t + 108° = 180°$ (supp.)

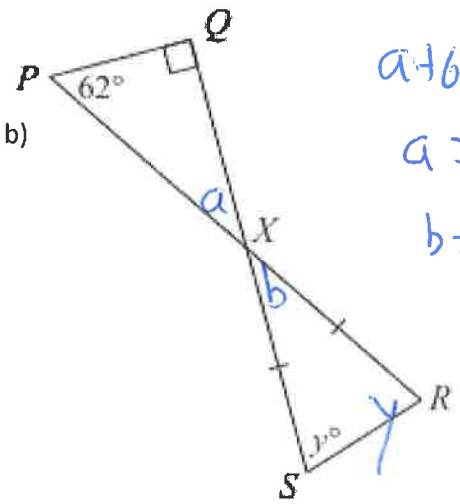
$t = 72°$

$y + 65 + 90 + 72 = 360$

$y + 227 = 360$

$y = 133°$

b)



$a + 62 + 90 = 180$ (AST)

$a = 28°$

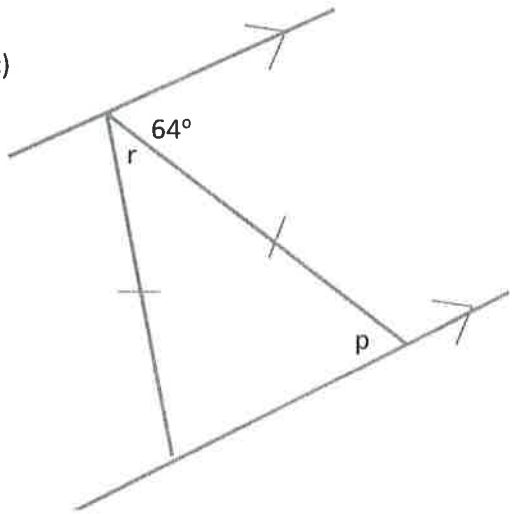
$b = 28°$ (opposite)

$2s + 2y = 180°$ (AST, ITT)

$2y = 152$

$y = 76°$

c)



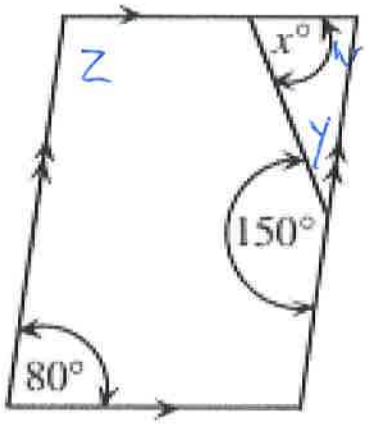
$p = 64°$ (PLT-2)

$r + 64 + 64 = 180°$ (AST, ITT)

$r + 128 = 180$

$r = 52°$

3. Find the value of x in the parallelogram below. **[3 marks]**



$Z + 180° = 180°$ (C-pattern)

$Z = 100°$

$y + 150 = 180°$ (supp)

$y = 30°$

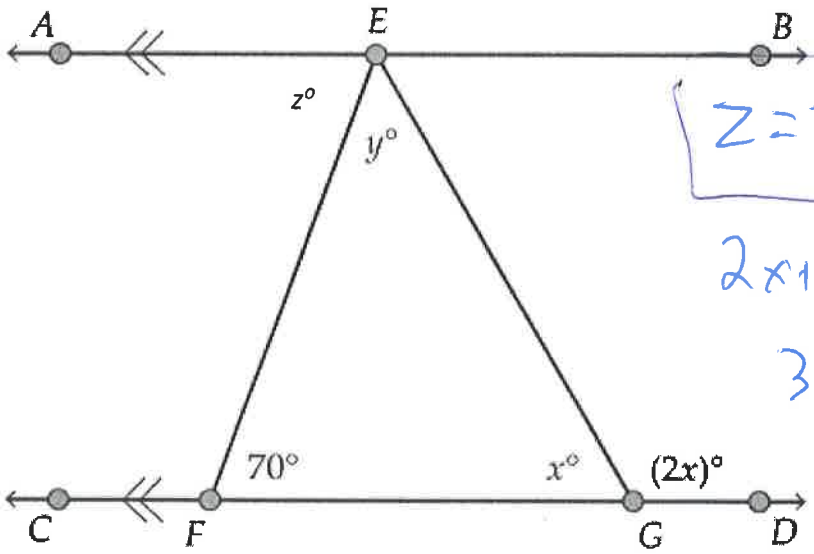
$w + 100 = 180°$ (C-pattern)

$w = 80°$

$80 + 30 + x = 180°$ (AST)

$x = 70°$

4. Find the values of x, y and z in the diagram below. **[4 marks]**



$Z = 70°$ (DLT-Z)

$2x + x = 180°$ (supp)

$3x = 180$

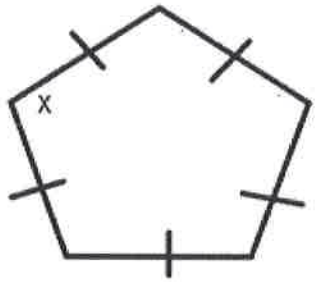
$x = 60°$

$y + 60 + 70 = 180°$ (AST)

$y = 50°$

5. Find the value of the variable in each diagram below. **[6 marks]**

a)

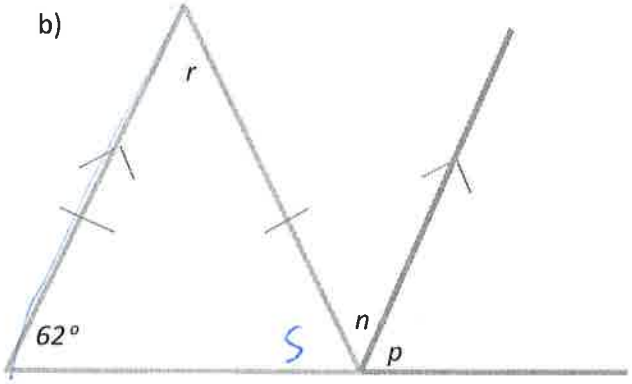


$5x = (5-2)180°$

$5x = 540°$

$x = 108°$

b)



$s = 62°$ (IT)

$r + 62 + 62 = 180°$ (AST)

$r + 124 = 180$

$r = 56°$

$n = 56°$ (PLT-2)

$p + 56 + 62 = 180°$ (s-pp.)

$p = 62°$

6. Mike draws a regular polygon. He measures one of the interior angles and finds it has a measure of 156°. How many sides does Mike's polygon have? **[3 marks]**

n sides

$156n = (n-2)180$

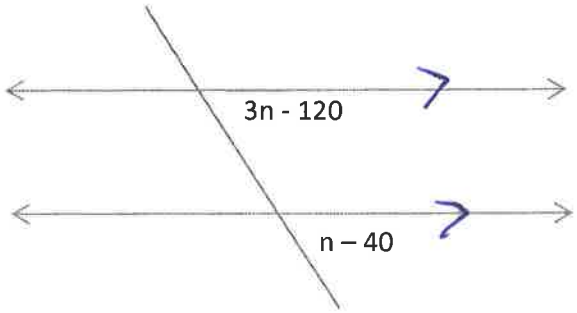
$156n = 180n - 360$

$360 = 24n$

$n = 15$

15 sides

7. Solve for x in the diagram below. **[3 marks]**

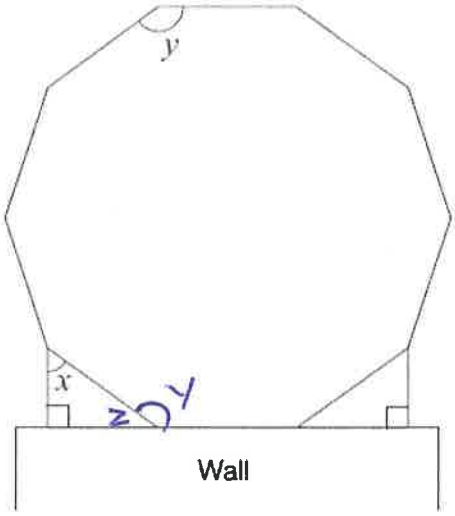


$3n-120=n-40$ (F-pattern)

$2n=80$

$n=40$

8. A schoolyard is in the shape of a regular decagon, as pictured below.



Find the values of x and y. Justify your reasoning. **[5 marks]**

$10y=(10-2)180°$

$10y=1440$

$y=144$

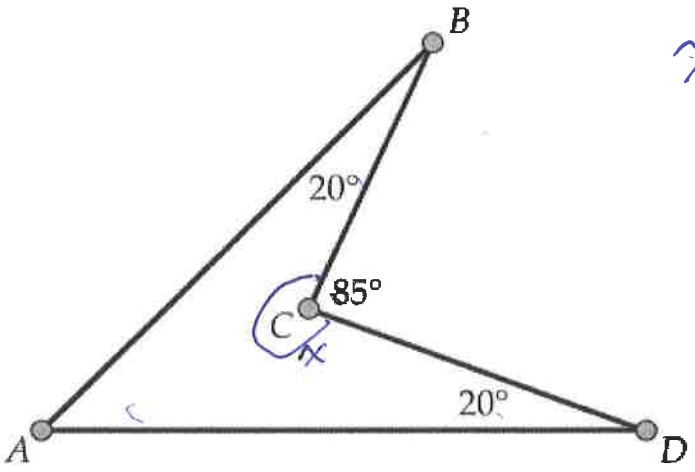
$z+144=180°$ (supp)

$z=36°$

$90+36+x=180°$ (AST)

$x=54°$

9. Find the value of angle A in the diagram below. **[3 marks]**



$x + 85 = 360°$

$x = 275°$

$275 + 20 + 20 + A = 360°$

$A = 45°$