Secondary 4 Normal Academic Revision Package 2024 Part 3 Answer

Coordinate Geometry

1a) 5.41 units

1b) $y = -\frac{3}{2}x + 2$

1c) The gradients of the lines are the same.

2a) 5 units

2b) $\cos ABC = -\frac{3}{5}$

2c) $y = \frac{1}{2}x + \frac{3}{2}$

3) $g = \frac{8}{3}$, $a = 5$

4a) $y = x + 5$

4b) $C(9,8)$

4c) 18 units^2

ABCD should be a parallelogram, not rhombus.

4d) $y = \frac{1}{3}x + 5$

5) $c = -9$

6a) $y = 3x + 1$

6b) 9 units^2

6c) $D(-6, -4)$

7) $k = 5$ or $k = -1$

8a) $A(0, -4)$

8b) $\frac{3}{2}$

8c) $y = \frac{3}{2}x - 2$

9) $p = 9$ or $p = -1$

10a) 7.07 units

10b) $y = 3x + 7$

10c) 9 units^2

10d) $S(-7,4)$

11a) –

11b) 5.10 units

11c) $y = x + 2$

12a) let $x = -1$, solve $y = -\frac{4}{3}$

12b) $\left(0, -\frac{1}{3}\right)$

13) $B(-6, -3)$

14a) 1

14b) (9,7)

15a) $(-2,0)$

15b) 6.71 units

16a) $y = 5$

16b) $y = -2x + 3$

16c) $D(3,1)$

17a) 4.47 units 17b) $y = \frac{1}{2}x + 2$ 17c) $T(-2, -1)$ 17d) Yes, let $x = -10$ solve for y.	

Kinematics

1a) $6\ \mathrm{m/s^2}$ 1b) $k = 75$ 2a) $v = 26$ 2b) $22.5\ \mathrm{m/s}$ 2c) $17\ \mathrm{m/s}$ 3a) The car is travelling at a constant speed. 3b) $t = 80$ 4a) $0\ \mathrm{m/s^2}$ 4b) The cyclist is at rest. 4c) 95 m 4d) 60 s 5a) 80 s 6a) 70 minutes 6b) $x = 60, y = 1$ 6c) No. Company *P* charges \$150. 7a) 2 hours 18 minutes 7b) 50 km 7c) 21.7 km/h	

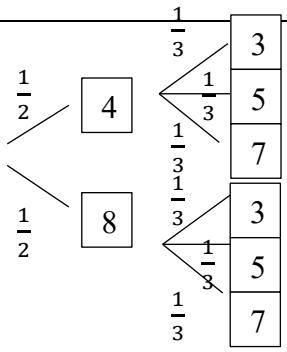
Graph

1a) $p = 0.8$	7a) $p = 24.3, q = 30.6$
1b) –	7b) –
1c) Draw $y = 3$. $x = 6.23$ or $x = 1.46$	7c) $x = 4.523$ or $x = 15.477$
1d) Actual gradient is 1.44	7d) Actual gradient is 0.378
2a) $-\frac{1}{2}$	8a) Top left: E, Top right: C, Bottom left: B, Botton right: D.
2b) $y = -\frac{1}{2}x + 6$	9a) $(1, -0.5)$
2c) –	9b) Draw $y = 3$, $x = 2$
2d) $(1.6\,, 5.2)$	10a) $a = 12$
2e) $a = -2\,, b = -1$	10b) –
3a) $\frac{3}{4}$	10c) minimum = 2.236
3b) –	10d) Actual gradient = -2.44
3c) Actual gradient is -2.77	11a) 3 seconds
3d) $x = 0.359$	11b) 16 m
4a) $2\,, -1$	12a) B
4b) –	12b) A
4c) $x = 1, y = 2$	12c) D
5a) C, B, E	12d) E
5b) Top left: B, Top right: A, Bottom Left: E, Bottom Right: D.	13a) 5.20
6a) $s = -6$	13b) –
6b) –	13c) $x = 1.63$
6c) $x = 3.77$	13d) Actual gradient is 3.30
6d) Actual gradient is -3	

14a) 0 14b) – 14c) $A(3,5)$ 14d) -1 15a) -1.125 15b) – 15c) 1.529 15d) Actual gradient is -1.92 16a) $p = 0, q = 26$ 16b) – 16c) $x = 2.854$ 16d) Actual gradient is 51.4 17) A, C 18a) – 18b) $x = 1$ 18c) Actual gradient is -2	

Probability

1a)



1b) $\frac{2}{3}$

2a)

Bag *A*	Bag *B*
Red	1
Red	2
Red	3
Yellow	1
Yellow	2
Yellow	3
Blue	1
Blue	2
Blue	3

2b) $\frac{1}{9}$

2c) $\frac{2}{9}$

2d) 0

3a) $\frac{1}{3}$

3b) 0

4a)

+	1	2	3	4	5
1	2	3	4	5	6
2	3	4	5	6	7
3	4	5	6	7	8
4	5	6	7	8	9
5	6	7	8	9	10

4b) $\frac{11}{25}$

4c) $\frac{6}{25}$

4d) $\frac{2}{5}$

5a) $\frac{1}{4}$

5b) $\frac{7}{12}$

6a) $\frac{1}{2}$

6b) 0

6c) $\frac{1}{2}$

7a) $\frac{4}{17}$

7b) 0

8a)

	0	1	2	3	4	5
0	-	0,1	0,2	0,3	0,4	0,5
1	1,0	-	1,2	1,3	1,4	1,5
2	2,0	2,1	-	2,3	2,4	2,5
3	3,0	3,1	3,2	-	3,4	3,5
4	4,0	4,1	4,2	4,3	-	4,5
5	5,0	5,1	5,2	5,3	5,4	-

8b) $\frac{1}{2}$

8c) $\frac{2}{15}$

8d) $\frac{1}{3}$

9a) $\frac{2}{5}$

9b) $\frac{2}{3}$

9c) 0

10a) $\frac{1}{4}$

10b) $\frac{11}{16}$

10c) 0

Statistics

1a) The size of the rubbish bin is not proportional to the tons of trash in the respective years. People may assume that in 1980, there are more than twice the amount of trash as compare to 1960.

1b) Use a bar graph of the same width to represent the amount of trash for each year.

2a) 18

2b) 21

2c) No, only $13\frac{1}{3}$ % of the students fail the test.

3a) 1080

3b) 390

4a) Mean = 10.375, SD = 6.21

4b) Class B. The standard deviation is lower.

4c) $\frac{51}{260}$

4d) $\frac{187}{390}$

5a) 4

5b) 4

5c) $\frac{1}{6}$

6a) HDB 4-room

6b) 68630 (Use protractor to measure)

6c) $79\frac{1}{16}\%$

7a) 38

7b) 56

7a) 38

7b) 56

7c) 48

7d) $\frac{2}{19}$

7e) $\frac{10}{39}$

8a) 19.9

8b) 10.8

8c) Class 4C, because the mean score is higher.

8d) The standard deviation will remain unchanged.

9) The size of the bubble tea is not proportional to the number of cups sold. Reader may assume that shop Z sold many times more than shop Y because of the size of the bubble tea.

10) $p = 16, q = 17$

11a) $\frac{4}{5}$

11b) The number of response for each category is very similar, so on a pie chart, the sector for each category will be look similar hence difficult to distinguish which category has more responses.

12a) 2

12b) 0

13a) Mean = 301.52 and SD = 1.19

13b) Morning, because the mean is higher than 300 g and the standard deviation is less than 1.52.

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13c) $\frac{3}{50}$

13d) $\frac{193}{1650}$

14a) 1

14b) 2

14c) 4

15a) 540

15b) 288

15c) Line graph. Able to the fluctuation of the data over the period of time.

16a) Mean = \$108.80, SD = \$12.63

16b) Estate B, because the mean utility bill is higher.

16c) $\frac{5513}{9950}$

16d) 0.741

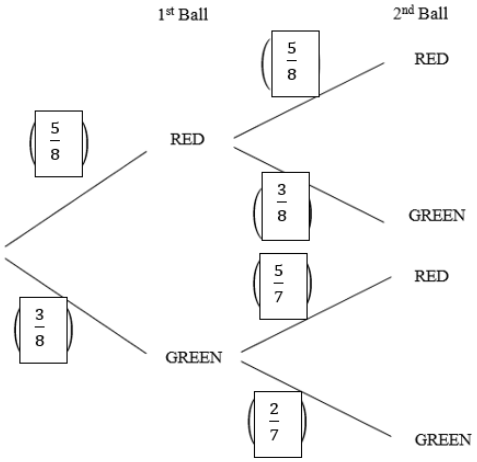
17a) 120

17b) 32.5%

18a) 30.5

18b) $\frac{1}{2}$

19a)



19b) $\frac{223}{448}$

20a) $a = 65, b = 10$

20b) Group A, the standard deviation of Group A is 7.49 which is lower than the standard deviation of Group B.

Q21) No doable

22a) $a = 25, b = 30, c = 45$

22b) 19

22c) 15

22d) 0.0353

22e) School B score better because the median mark is higher.

23a) 60

23b) 57

23c) 40%

24a) 32.5

24b) 18

24c) 34

24d) 25

24e) Student score higher in Science exam because the median is higher.
Score among students in the Mathematics exam is more consistent than among students in the Science exam because the interquartile range is lower.

25a) 20

25b) 1.5

25c) 0

26a) $x = 51$

26b) 40

26c) 7.5%

27a) 45

27b) 41

27c) 35

27d) $\frac{11}{24}$

28a) $a = 36 - 3 - 7 - 10 - 6 - 5 - 2$
$a = 3$

28b) 45

28c) 15.8

28d) 0.402

28e) $\frac{1}{15}$

29a) 9

29b) It is difficult to determine whether more people like Green Spot or Cola.

30a) 45 g

30b) The new median can be 72g, smaller than 72g or bigger than 72g.
(Options given are incorrect.)

31a) 32

31b) 30

32a) 160.6 cm

32b) 14.3 cm

Yes, because the mean height is higher.

32c) $\frac{101}{198}$

32d) 0.0111

Repeated Q32

32a) The vertical axis did not start from 0. It will appear that March covid cases is half of February.

32b) No, percentage decrease from Jan to Feb is 20% and the percentage decrease from Feb to Jan is 25%

33a) 89

33b) 63

33c) 62

33d) No, only 30% of the student fail.

34a) 0.4875

34b) Mean = 11.1, SD = 1.23

34c) We do not know the exact timing of each student 2.4 km run.

34d) No, the mean timing is lower.

34e) Yes, the standard deviation is lower.

35a) 23

35b) 36

35c) No, only 25% did more than 45 repairs in a month.

36a) 1224

36b) 35°

37a) We do not know the starting point of the vertical axis.

37b) The year 2015 in missing from the chart.

38a) 35

38b) 15

38c) 12

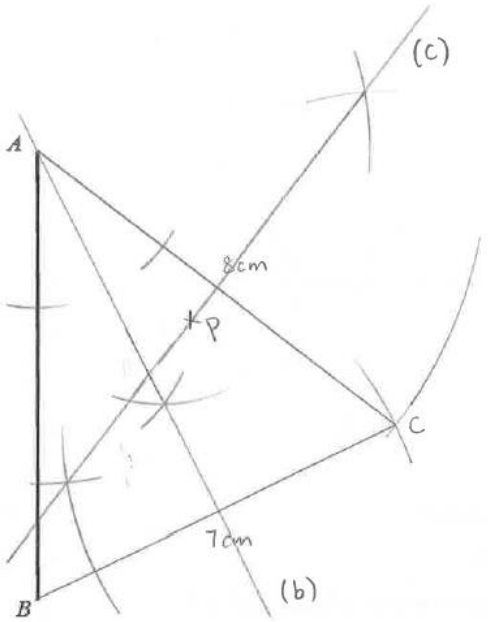
38d) Company B, because the median overtime is lesser.

38e) $\frac{11}{1900}$

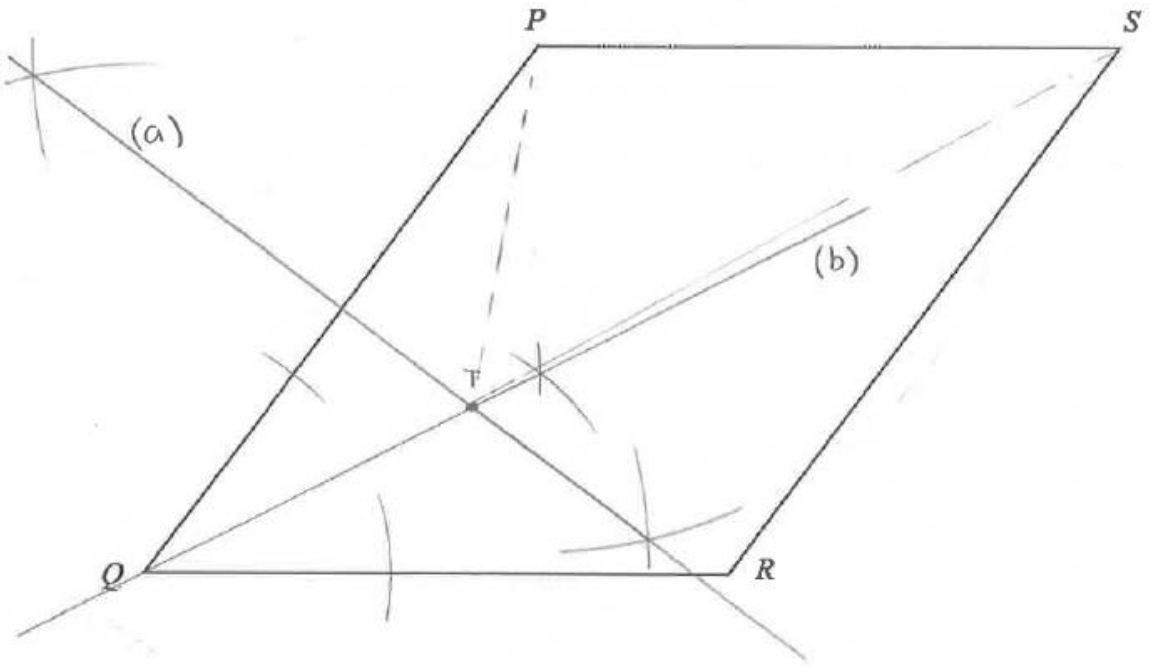
38f) $\frac{8}{595}$

Construction

1)



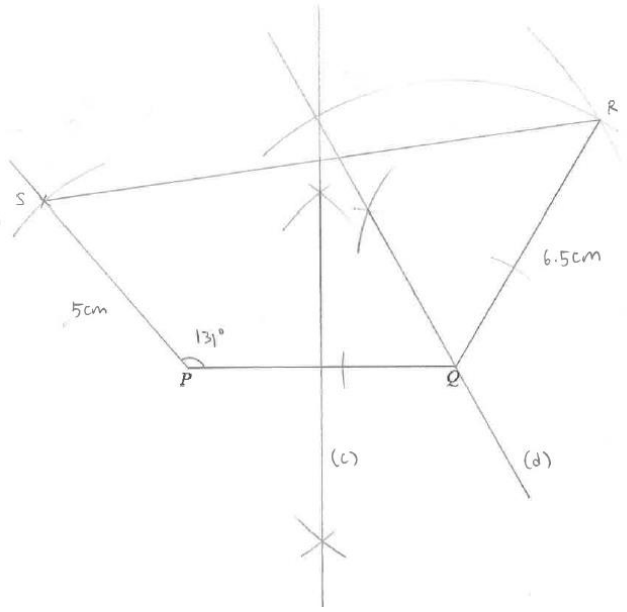
2)



2c) 5 cm

2d) 51°

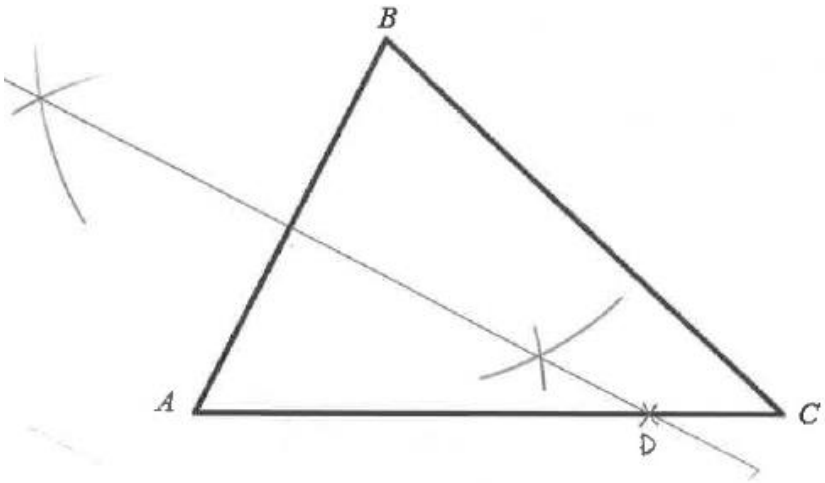
3)



3b) 60°

Question 3 repeated.

3)



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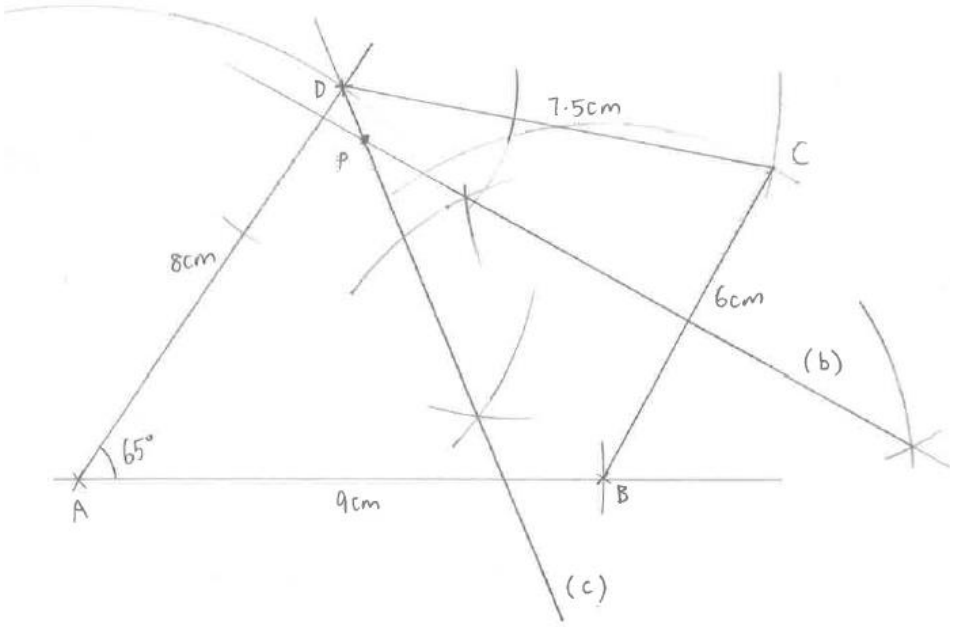
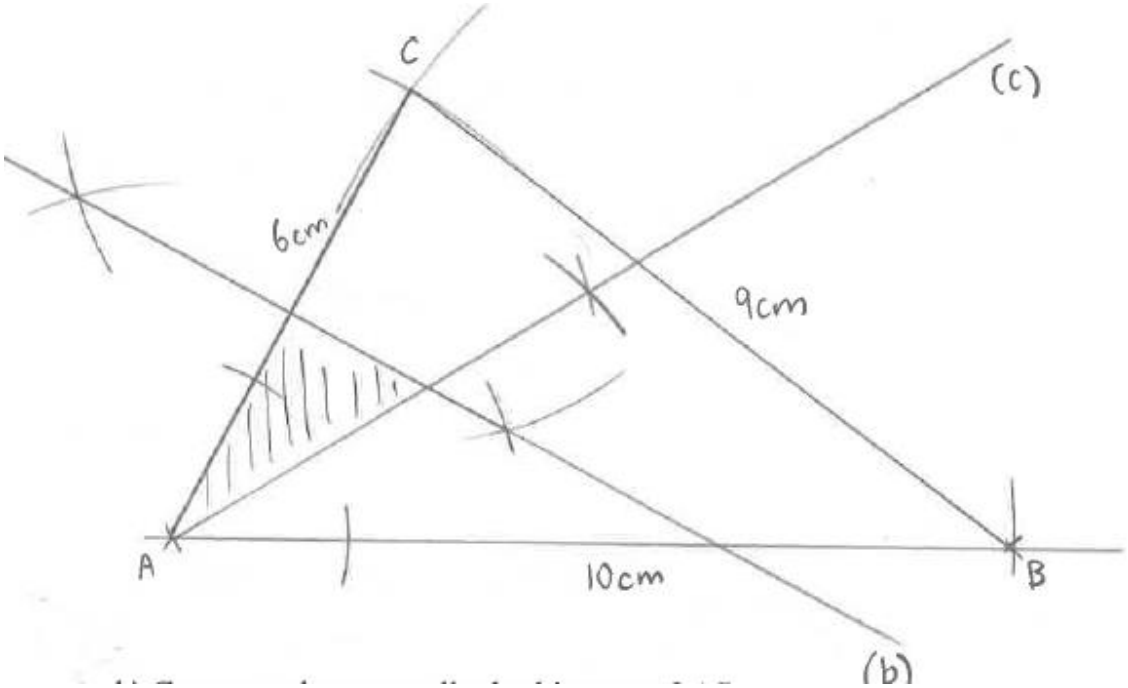


4d) 7 cm

5)



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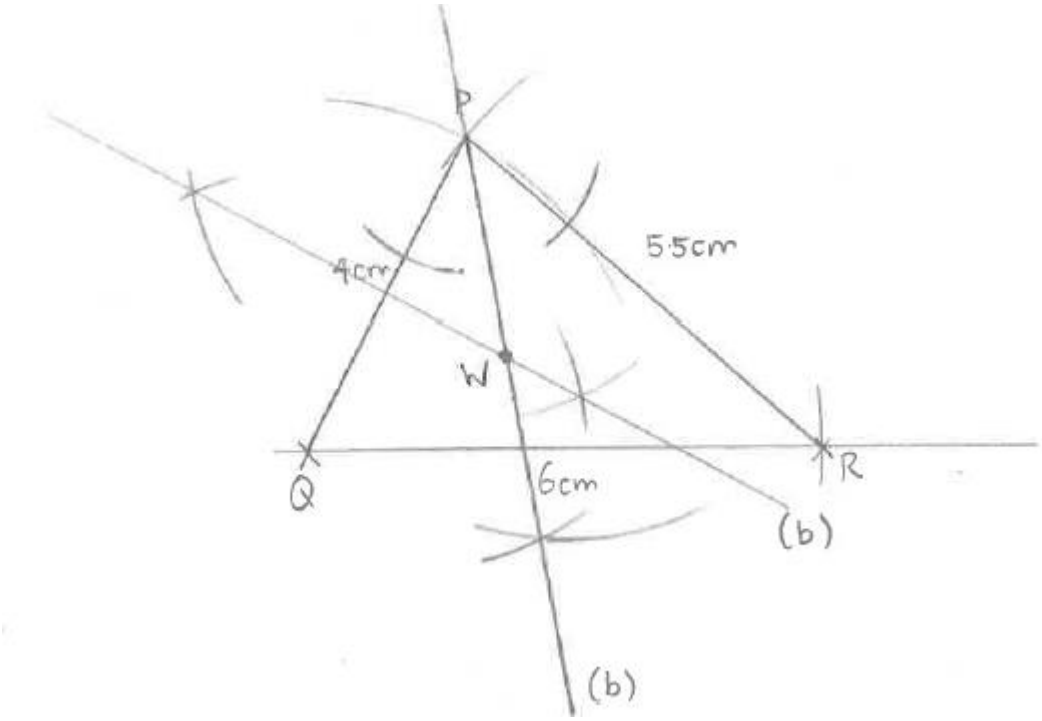

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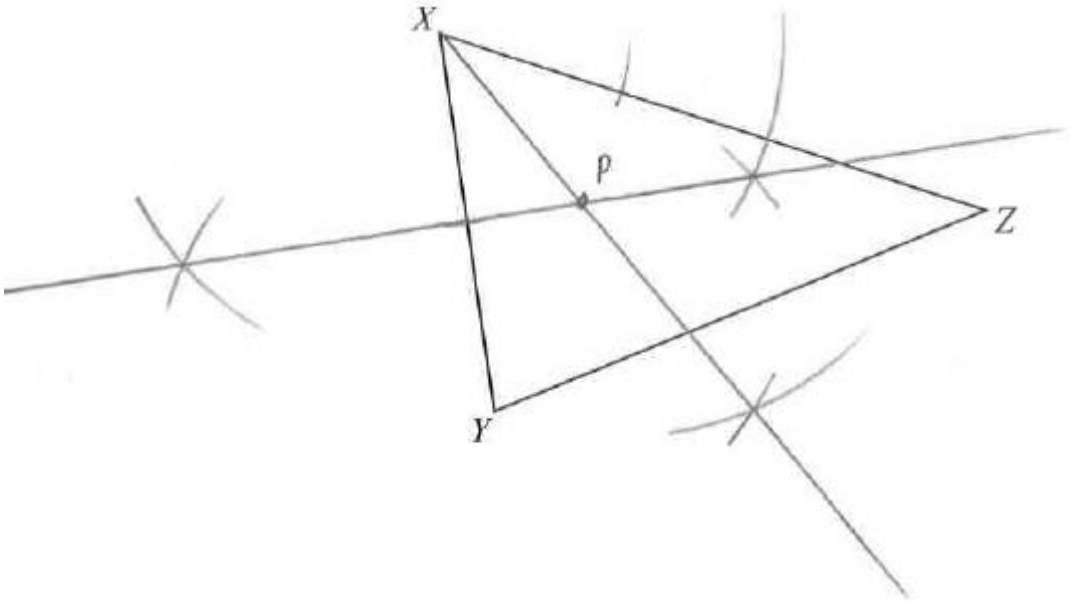

8)