Math Challenge I-B: Geometry

Answer Key

Areteem Institute

Chapter 1. Counting Through Patterns

Quick Reponse Questions:

1.11: 7

1.12: 3

1.13: B

1.14: D

1.15: B

1.16: C

1.17: 5

1.18: 13

1.19: 100

1.20: 30

Practice Questions:

1.21: 10.

1.22: $54°$.

1.23(a): 44

1.23(b): 63

1.24: 30.

1.25: 14.

1.26: 7.

1.27: 35.

1.28: 22.

1.29: 379.08cm^2.

1.30: 20cm.

Chapter 2. Measurements

Quick Reponse Questions:

2.11: 14

2.12: 5

2.13: 12

2.14: 20

2.15: 16

2.16: 2

2.17: 24

2.18: 25

2.19: 21

2.20: 45

Practice Questions:

2.21: 49

2.22: 24in^2.

2.23: 20 in and 15 in.

2.24: 143 cm^2.

2.25: 44 cm.

2.26: 20.

2.27: 6 cm^2.

2.28: 32.

2.29: 6 and 2.

2.30: 3600.

Chapter 3. Magic in Triangles

Quick Reponse Questions:

3.11: Yes

3.12: No

3.13: Yes

3.14: No

3.15: Yes

3.16: Yes

3.17: No

3.18: 120

3.19: 80

3.20: Yes

Practice Questions:

3.21: Omitted

3.22: Omitted

3.23: $70°$.

3.24: Omitted

3.25: 1.

3.26: Omitted

3.27: $115°$.

3.28: Omitted

3.29: Omitted

3.30(a): $\angle A = \angle B = \angle C = 60°$

3.30(b): $\angle A = \angle B = 70°$

3.30(c): $\angle B = 50°, b = 10$

3.30(d): $\angle C = 70°, c = 10$

Chapter 4. You are Special, Right?

Quick Reponse Questions:

4.11: 29

4.12: 4.24

4.13: 6

4.14: 1

4.15: 24

4.16: 240

4.17: 4.5

4.18: No

4.19: 30

4.20: B

Practice Questions:

4.21: Omitted

4.22(a): No.

4.22(b): Yes.

4.22(c): Yes.

4.22(d): No.

4.22(e): Yes.

4.23: 36.

4.24: No.

4.25(a): Altitude: $2\sqrt{2}$ cm

4.25(b): $3\sqrt{2}$ cm

4.25(c): 2 in.

4.26: $75°$.

4.27: True.

4.28: Yes

4.29: $12\sqrt{3} - 18$.

4.30: $70°$

Chapter 5. Angles are Special Too

Quick Reponse Questions:

5.11: Yes

5.12: Yes

5.13: No

5.14: No

5.15: 140

5.16: 3240

5.17: 360

5.18: 360

5.19: 80

5.20: 130

Practice Questions:

5.21: $\dfrac{1}{3}$.

5.22: No.

5.23: 14.

5.24: $82.5°, 37.5°$

5.25: Yes.

5.26: $43\sqrt{3}/4$.

5.27(a): $288 + 288\sqrt{2}$.

5.27(b): 10.

5.28: Yes.

5.29: Omitted

5.30: $2 - \sqrt{2}$.

Chapter 6. Area of Polygons

Quick Reponse Questions:

6.11: 9

6.12: 23.4

6.13: 43.5

6.14: 8

6.15: 15

6.16: 49

6.17: 32

6.18: 48

6.19: 48

6.20: 125

Practice Questions:

6.21(a): 20.

6.21(b): Smallest is 18.

6.22: 75.

6.23: 1 : 3.

6.24: 1 : 2.

6.25: $\triangle AFC$, $\triangle ADF$, $\triangle ABE$

6.26: 36.

6.27: $[ABCD]/3$.

6.28: 3 : 8.

6.29: 1 : 1.

6.30: 27.

Chapter 7. Cool Areas

Quick Reponse Questions:

7.11: 11

7.12: 10

7.13: 12

7.14: 48

7.15: 6

7.16: 7

7.17: 6

7.18: 18

7.19: 17

7.20: 51

Practice Questions:

7.21(a): 75

7.21(b): 32

7.21(c): 32

7.21(d): 14

7.22: 24

7.23: 25/2

7.24: 12

7.25: 2

7.26: 15

7.27: 3

7.28(a): 18.

7.28(b): 18

7.29: 5

7.30: 18

Chapter 8. Circle Around

Quick Reponse Questions:

8.11: 78.5

8.12: 31.4

8.13: No

8.14: 25.1

8.15: 201

8.16: No

8.17: No

8.18: 21.8

8.19: 13.76

8.20: 25.1

Practice Questions:

8.21: 16

8.22(a): 2π

8.22(b): $2\pi - 4$

8.23(a): $25\pi - 50$

8.23(b): $125\pi/4 - 50$

8.24: 24

8.25: ≈ 21

8.26: 4

8.27: $50\pi - 100$

8.28: 2

8.29: 20π

8.30(a): $4 + 2\sqrt{2} + 2\pi$

8.30(b): $\pi + 2\sqrt{2} + 2$

Chapter 9. Circle Back

Quick Reponse Questions:

9.11: 18.9

9.12: 72

9.13: 8

9.14: 54

9.15: 30

9.16: 20

9.17: 1

9.18: 4

9.19: C

9.20: 17

Practice Questions:

9.21: $3:4$

9.22: 350π

9.23: 8

9.24: $2\pi + 12$

9.25: $4\pi/3$

9.26: 50π

9.27: 26 cm^2

9.28: 20π

9.29(a): $4 + 2\pi$

9.29(b): $4 + 2\pi$

9.30(a): 8π

9.30(b): $8\pi + 8\sqrt{2}$