Math Challenge I-A: Pre-Algebra and Word Problems

Answer Key

Areteem Institute

Chapter 1. Ratios and Proportions

Quick Reponse Questions:

1.11: 20

1.12: 153

1.13: 30

1.14: 20

1.15: 66

1.16: 12

1.17: 2.50

1.18: 8.41

1.19: 47

1.20: 15

Practice Questions:

1.21(a): Yes.

1.21(b): No.

1.21(c): Yes.

1.22: 42

1.23: $10

1.24: 0

1.25: From high to low: AFZ, BLS, CIW

1.26: $60

1.27: 43

1.28: 60

1.29: 27

1.30: First part $120, second part $50, third part $200

Chapter 2. Ratios and Percentages

Quick Reponse Questions:

2.11: 25

2.12: 25

2.13: 30

2.14: 86.40

2.15: 416

2.16: 60%

2.17: 40

2.18: 73.50

2.19: 126900

2.20: 3

Practice Questions:

2.21(a): 389

2.21(b): 4

2.22: 85%

2.23: $81

2.24: 7%

2.25: $475.75

2.26: Medium, Large, Small

2.27: 1.4%

2.28: 5%

2.29: 50%

2.30: 18

Chapter 3. Sums, Differences, and Multiples

Quick Reponse Questions:

3.11: 4

3.12: 6

3.13: 20

3.14: 1.50

3.15: 15

3.16: 30

3.17: 240

3.18: 36

3.19: 23

3.20: 21

Practice Questions:

3.21: 1075 and 1225

3.22: Friend's cake: 12 candles; Twin's cakes: 4 candles, each

3.23: 3rd grade: 34; 4th grade: 45; 5th grade: 29

3.24: Tom: 6; Jerry: 4

3.25: Basketballs: 24; Soccer balls: 64; Volleyballs: 24

3.26: Suzi: 8; Lisa: 16

3.27: Girls: 17; Boys: 31

3.28: Jack: 49; John: 51; Jill: 59

3.29: Old Wendy: 9 pounds; Old McDonald: 27 pounds

3.30: 870

Chapter 4. Chickens and Rabbits

Quick Reponse Questions:

4.11: 160

4.12: 60

4.13: 58

4.14: 20

4.15: 6

4.16: 13

4.17: 40

4.18: 18

4.19: 8

4.20: 80

Practice Questions:

4.21: 26 chickens, 19 rabbits

4.22: 35 cars, 25 motorcycles

4.23: 68 pentagons, 20 triangles

4.24: 15

4.25: 7 salads, 13 pizzas

4.26: 5

4.27: 44 ducks, 36 sheep

4.28: $17

4.29: 25 big mice, 75 baby mice

4.30: 40 $2, 20 $5, 20 $10 bills

Chapter 5. Extending Chickens and Rabbits

Quick Reponse Questions:

5.11: 42

5.12: 9

5.13: 7

5.14: 26

5.15: 6

5.16: 3

5.17: 8

5.18: 62.5

5.19: 20

5.20: 4

Practice Questions:

5.21: 5

5.22: 12 gallons 25% solution, 18 gallons 50% solution

5.23: 4%: 75 pounds, 20%: 45 pounds

5.24: 20 red, 30 green, 30 blue

5.25: 7 spiders, 5 fireflies, 4 cicadas

5.26: 7

5.27: 20 big containers, 30 small containers

5.28: 20 large, 40 small

5.29: 20

5.30: $420

Chapter 6. Motion Problems

Quick Reponse Questions:

6.11: No.

6.12: Yes.

6.13: D.

6.14: 40

6.15: 80

6.16: 40

6.17: 3

6.18: 42.5

6.19: 20

6.20: 4

Practice Questions:

6.21: $\frac{3}{7}$ miles per minute

6.22: 55 miles per hour

6.23: 9 hours

6.24: $\frac{1300}{23}$ miles per hour

6.25: 25 minutes

6.26: 48 miles per hour

6.27: 3.4 hours

6.28: 4 hours and 30 minutes

6.29: Sami: 6 meters/sec, Rajan: 4 meters/sec

6.30: (i) 6 seconds, (ii) $\frac{22}{3}$ seconds

Chapter 7. Problem Solving with Motion

Quick Reponse Questions:

7.11: 40

7.12: 31.5

7.13: 3

7.14: 60

7.15: 13

7.16: 101

7.17: 2

7.18: 12.5

7.19: 6

7.20: 100

Practice Questions:

7.21: 54 miles per hour

7.22: 24 days

7.23: 30 miles

7.24: $\dfrac{600}{19}$ cm per minute

7.25: 15

7.26: 300 miles

7.27: 4 miles per hour

7.28: 15 seconds

7.29: $\dfrac{550}{43}$ mph

7.30: 1488 miles

Chapter 8. Work Problems

Quick Reponse Questions:

8.11: 6.5

8.12: 1000

8.13: 1.5

8.14: 90

8.15: B

8.16: D

8.17: 72

8.18: 90

8.19: 50

8.20: 3

Practice Questions:

8.21: $\dfrac{6}{7}$ hours

8.22: 6 hours

8.23: $\dfrac{4}{5}$ hours

8.24: $1\dfrac{2}{3}$ minutes

8.25: $\dfrac{30}{47}$ hours.

8.26: 20 minutes

8.27: Iris: 96 days, Olivia: $\dfrac{32}{3}$ days

8.28: $\dfrac{3}{5}$

8.29: 15 minutes.

8.30: Bob

Chapter 9. Problem Solving with Work

Quick Reponse Questions:

9.11: 25

9.12: 2

9.13: 5

9.14: D

9.15: A

9.16: C

9.17: 12

9.18: 160

9.19: 2

9.20: 3

Practice Questions:

9.21: 6.25 hours

9.22: $\dfrac{25}{2}$ hours and $\dfrac{25}{3}$ hours

9.23: $\dfrac{60}{17}$.

9.24: Ben: 10 days, Jack: 15 days

9.25: 10 days

9.26: $6\dfrac{1}{4}$.

9.27: 1050

9.28: $4\dfrac{2}{3}$.

9.29: 960

9.30: $\dfrac{7}{4}$ hours