Worked answer key

Questions 1-10

Answers follow the question order in the matching test booklet.

01 **5**

Start at −6, add 14 to reach 8, then subtract 3 to reach 5°F.

02 **17**

Square 3 to get 9. Multiplying 2 by −4 gives −8, so 9 − (−8) = 17.

03 **10**

Two inches represent 8 miles and half an inch represents 2 more. The path is 10 miles.

04 **15**

Subtract 4 to obtain x/3 = 5. Multiply both sides by 3.

05 **5/8**

Write 3/4 as 6/8. Subtract 1/8 to leave 5/8 pound.

06 **90**

The full rectangle has area 96 square feet. Subtract the 6-square-foot planter.

07 **50**

Elevation increases 150 feet over 3 miles. The slope is 150 ÷ 3.

08 **50.4**

The sale price is 64 × 0.75 = 48 dollars. Add 0.05 × 48 = 2.40 dollars in tax.

09 **9**

If all 18 tickets were student tickets, the total would be $90. Each adult adds $4, so the extra $36 represents 9 adults.

10 **7**

Order the waits as 3, 4, 7, 12, 19. The third of the five values is 7.

Worked answer key

Questions 11-20

Answers follow the question order in the matching test booklet.

11 **14**

Expanding gives 4t − 12 = 2t + 16. Subtract 2t and add 12 to get 2t = 28.

12 **12**

The ladder is the hypotenuse. The height squared is $13^2 - 5^2 = 144$, so the positive height is 12.

13 **48**

Substitute 5 for h. Subtract 4 × 5 = 20 from 68.

14 **2**

The first bag costs \$3.36 ÷ 24 = \$0.14 per ounce. Subtract 14 cents from 16 cents.

15 **13**

The remaining capacity is 375 pounds. Thirteen boxes weigh 364 pounds, while fourteen weigh 392.

16 **13**

Square −3 before multiplying: 2 × 9 − 5 = 13.

17 **25**

The gain is 8 members. Divide by the original 32 and multiply by 100 to get 25%.

18 **16**

Four shifts total 4 × 18 = 72 stops. The first three total 56, leaving 16.

19 **3**

Its slope is (15 − 9)/(4 − 2) = 3. Substituting (2, 9) in y = 3x + b gives b = 3.

20 **150**

Set 18 + 0.12n = 6 + 0.20n. The \$12 setup difference equals \$0.08 per flyer times 150 flyers.

Worked answer key

Questions 21-30

Answers follow the question order in the matching test booklet.

21 **12**

A kit count must divide both 36 and 48. Their greatest common factor is 12, giving 3 pens and 4 pencils per kit.

22 **78.5**

The radius is half of 10, or 5. Area equals $\pi \times 5^2 = 78.5$ square meters.

23 **11**

Let the adapter cost a dollars. Then a + 3a + 2 = 46. Solve 4a = 44.

24 **81**

The running rate is 9 gallons per minute. Only the 4 + 5 running minutes count, so multiply 9 by 9.

25 **26**

Height increases 3 cm per week. Four weeks after week 3, the height is 14 + 4 × 3.

26 **6**

Solve $38 + 7n \geq 80$. The difference is 42 points, exactly six tasks.

27 **45**

Multiply 60 × 30 × 25 to get 45,000 cubic centimeters. Divide by 1,000.

28 **222**

The chipped count is 0.075 × 240 = 18. Subtract 18 from 240.

29 **68**

Each bundle costs 4 × 7 + 6 = 34 dollars. Two separate orders cost 68 dollars.

30 **1/2**

Six of the 12 tokens are blue or green. Divide 6 by 12.

Worked answer key

Questions 31-40

Answers follow the question order in the matching test booklet.

31 **640**

There are three doublings. Multiply 80 × 2 × 2 × 2 to get 640.

32 **4**

Factor the left side as (x − 3)(x − 4). Setting each factor equal to zero gives 3 and 4.

33 **3**

Each drawing centimeter represents 180 ÷ 7.5 = 24 actual centimeters. Divide 72 by 24.

34 **2.8**

Distance is 6 + 8 = 14 miles. Elapsed time is 5 hours. Divide 14 by 5.

35 **72**

The two angles sum to 180°. Each of the five equal shares is 36°, and the smaller angle takes two shares.

36 **6**

Solve 71 + 3h < 90 to get h < 19/3. Six hours gives 89°F and seven gives 92°F.

37 **5**

Distribute to get 6x + 12 − x − 5. Combine like terms to get 5x + 7.

38 **18**

Tuesday and Thursday total 51 visits. Monday and Wednesday total 33. Their difference is 18.

39 **35**

The output rises 8 for an input increase of 2. From input 5 to 8, add 3 × 4 to 23.

40 **48**

Total capacity is 72 ÷ 0.60 = 120. Subtract the 72 occupied seats.

Worked answer key

Questions 41-50

Answers follow the question order in the matching test booklet.

41 **30**

Subtract 32 from 86 to get 54. Multiply by 5/9 to recover C = 30.

42 **5**

Let the width be w. Then w(w + 4) = 45. The positive factor pair 5 and 9 differs by 4, giving width 5.

43 **10**

Substitute 3 to obtain −9 + 18 + 1 = 10 meters.

44 **16**

Fifteen boxes cover 210 square feet, leaving 2 square feet. One more box brings the purchase to 16.

45 **140**

The sample fraction is 24/60 = 0.4. Multiply 350 by 0.4 for the estimate.

46 **84**

Half the perimeter is 19 cm, equal to length plus width. Width is 19 − 12 = 7 cm. Multiply 12 by 7.

47 **6**

Subtract 4 to obtain −3x < −15. Dividing by −3 reverses the inequality to x > 5.

48 **4**

Multiply (s + 2)(s + 2). The two middle terms are 2s and 2s, giving 4s.

49 **20**

Four hours are additional. The cost is 8 + 4 × 3 dollars.

50 **5**

At the x-axis, y is zero. Solve 0 = −2x + 10 to find x = 5.