

Answer Key

1. 37
2. 39
3. 43
4. 33
5. 23
6. {1, 2, 4, 7, 8, 14, 28, 56}
7. {1, 2, 4, 8, 11, 22, 44, 88}
8. {1, 7, 13, 91}
9. {1, 2, 4, 23, 46, 92}
10. {1, 3, 31, 93}
11. {1, 5, 19, 95}
12. {1, 2, 7, 14, 49, 98}
13. {1, 3, 9, 11, 33, 99}
14. {1, 2, 4, 5, 10, 20, 25, 50, 100}
15. {41, 43, 47, 53, 59}
16. 4 R 5
17. 5 R 2
18. 5 R 2
19. 5 R 3
20. 5 R 4
21. 5 R 5
22. 8 R 4
23. 8 R 5
24. 9 R 2
25. 9 R 3
26. $7\frac{1}{6}$
 $43 \div 6 = 7 r 1$
27. $7\frac{5}{6}$
 $47 \div 6 = 7 r 5$
28. $3\frac{5}{7}$
 $26 \div 7 = 3 r 5$
29. $4\frac{4}{7}$
 $32 \div 7 = 4 r 4$
30. $4\frac{3}{8}$
 $35 \div 8 = 4 r 3$
31. $2\frac{2}{9}$
 $20 \div 9 = 2 r 2$
32. $6\frac{1}{8}$
 $49 \div 8 = 6 r 1$
33. $5\frac{7}{9}$
 $52 \div 9 = 5 r 7$
34. $6\frac{2}{9}$
 $56 \div 9 = 6 r 2$
35. $4\frac{1}{11}$
 $45 \div 11 = 4 r 1$
36. $\frac{9}{7} = 1\frac{2}{7}$
37. $\frac{6}{5} = 1\frac{1}{5}$
38. $\frac{13}{4} = 3\frac{1}{4}$
39. $\frac{9}{6} = 1\frac{3}{6}$
40. $\frac{5}{4} = 1\frac{1}{4}$
41. $\frac{13}{4} = 3\frac{1}{4}$
42. $\frac{13}{8} = 1\frac{5}{8}$
43. $\frac{6}{5} = 1\frac{1}{5}$
44. $\frac{10}{6} = 1\frac{4}{6}$
45. $\frac{9}{8} = 1\frac{1}{8}$
46. 60
47. 5
48. 75
49. 192
50. 4
51. 12
52. 60
53. 68
54. 189
55. 12 & 3 (Remainder)
56. 96
57. 6
58. 396
59. 3996
60. 39996
61. 72
62. 16
63. 30
64. 144
65. 5
66. $\frac{1}{2} \times 60 = 30$ min
67. $3 + 4 + 5 = 12$
68. $13 + 14 + 15 = 42$
69. $23 + 24 + 25 = 72$

MAP 239+ (T2) Issue 10

70. $29 - 22 + 1 = 8$
 $8 \times 10 = 80$
71. $18 \div 6 = 3$ cupcakes
72. 40123
73. $39 \div 3 = 13$
 $39 - 13 = \underline{26}$
74. $18 \times \frac{1}{4} = \4.50
75. $20 + 7 = 27$
 $27 \div 3 = 9$
 $2 \times 9 = 18$
 $20 - 18 = \$2$ (left)
76. $\boxed{25} \times \frac{1}{5} = 5$
77. $3 \times 12 = 36$
 $36 \times 2 = 72$ (still enough)
 $36 \times 3 = 108$ (over)
Ans = 2 dozen
78. $24 - 6 = 18$
 $18 \div 2 = 9$ dogs
79. $51 \times .5 = \underline{\$25.50}$
80. $50 \times 5 = 250$ miles
81. $127 + 113 = 240$
 $\frac{1}{3}(240) = 80$
 $240 - 80 = \underline{160}$
82. $\frac{1}{3}(60) = 20$
83. $10 - 1.6 = 8.4$
 $8.4 \div 3 = \$2.80$
84. $3 \times 2 \times 14 = \underline{84}$
85. (a) 450
(b) 549

Answer Key

- | | |
|--------------------|-----------------------------------|
| 1. $\frac{1}{4}$ | 39. 5.4 |
| 2. $\frac{1}{12}$ | 40. 5.125 |
| 3. $\frac{10}{27}$ | 41. 0.9 |
| 4. $\frac{12}{35}$ | 42. 0.25 |
| 5. $\frac{16}{63}$ | 43. 0.02 |
| 6. $\frac{3}{16}$ | 44. 0.06 |
| 7. $\frac{4}{21}$ | 45. $\frac{2}{3}$ |
| 8. $\frac{5}{18}$ | 46. 0 |
| 9. $\frac{5}{8}$ | 47. 28% |
| 10. $\frac{7}{40}$ | 48. 50% |
| 11. 0.63 | 49. 200% |
| 12. 0.48 | 50. 7.5 |
| 13. 0.27 | 51. 40 |
| 14. 2500 | 52. 12 |
| 15. 1200 | 53. 0.45 |
| 16. 100 | 54. 80 |
| 17. 150 | 55. 100 |
| 18. 3.2 | 56. 10 |
| 19. 450 | 57. 100 |
| 20. 60 | 58. $2^3 \times 3^2$ |
| 21. 12.5 | 59. $\Delta = 15$ |
| 22. 0.75 | 60. $\frac{49}{9} = 5\frac{4}{9}$ |
| 23. 6.25 | 61. D |
| 24. 0.8 | 62. B |
| 25. 0.024 | 63. D |
| 26. 0.24 | 64. C |
| 27. 2.4 | 65. D |
| 28. 0.3 | 66. D |
| 29. 0.5 | 67. B |
| 30. 0.036 | 68. B |
| 31. 8.7 | 69. C |
| 32. 6.5 | 70. D |
| 33. 4.75 | 71. D |
| 34. 3.2 | 72. D |
| 35. 7.4 | 73. C |
| 36. 7.125 | 74. D |
| 37. 3.25 | 75. B |
| 38. 8.75 | 76. B |
| | 77. X and W |
| | 78. A |
| | 79. C |

MAP 249+ (T2) Issue 10

80. B

81. $32.5 \times (17 + 13) = 32.5 \times 30 = 325 \times 3 = 975$

82. $144\pi = 12^2\pi$
 $2 \times 12\pi = 24\pi = 24 \pi$ inches

83. $25 - 4 = 21$
 $21 \div 25 = 84\%$

84. 12 for \$2
 6 for \$1
 18 for \$3
 $18 - 12 = 6$ oranges added

85. $120:144 = 10:12 = 5:6$

86. $30 \div 5\% = 30 \div 0.05 = 3000 \div 5 = \600

87. $8 + 9 + 4 = 21$
 See the steps below.

$21 - (9 + 5) = 7$

8		
9	7	5
4	n	

$21 - (4 + 7) = 10$

8		10
9	7	5
4	n	

$21 - (8 + 10) = 3$

8	3	10
9	7	5
4	n	

$21 - (3 + 7) = 11$

8	3	10
9	7	5
4	11	

88. $\text{LCM}(6, 10) = 30$
 $\text{LCM}(30, 8) = 120$

89. D

90. $2(80 + 60) = 280$
 $280 \div 10 = 28$ posts

91. C
 For A: $12 \div 20 = 0.6$
 For B: $18 \div 30 = 0.6$
 Thus, both have the same steepness.

92. $25\% \times \$600 = \150

93. $600 + 150 = \$750$

94. 10 matches needed
 RY, RG, RB, RW,
 YG, YB, YW,
 GB, GW, and
 BW.

95. ① $9+8+7+6+5+4+3+2+1 = 99$, 7 addition signs.
 ② $9+8+7+6+5+4+3+2+1 = 99$, 6 addition signs.
 Ans = 6

96. $Y = -1$

1		Y = -1
-4	-2	
-3		-5

97. $125 = 5^3$
 $5^2 = 25 \text{ cm}^2$

98. (a) $\frac{8}{15} = 8/15$
 (b) $\frac{8}{15} \times 300 = 160$

99. $3 \div 4 + 21 \div 4$
 $= (2 + 21) \div 4$
 $= 6$

100. $\frac{\text{discount}}{\text{original price}} = \frac{6}{24} = 0.25 = 25\%$

Answer Key

- | | |
|----------------------|--|
| 1. $\frac{2}{3}$ | 37. 2800 |
| 2. $\frac{7}{12}$ | 38. 0.16 |
| 3. $\frac{13}{21}$ | 39. 0.0225 |
| 4. $\frac{5}{9}$ | 40. 0.3 |
| 5. $\frac{29}{56}$ | 41. 6 |
| 6. $\frac{17}{28}$ | 42. 4.5 |
| 7. $\frac{4}{9}$ | 43. 6.4 |
| 8. $\frac{1}{2}$ | 44. 12 |
| 9. $\frac{5}{18}$ | 45. 47.5 |
| 10. $\frac{7}{27}$ | 46. 11.2 |
| 11. $4\frac{9}{20}$ | 47. 36 |
| 12. $5\frac{1}{5}$ | 48. 20% |
| 13. $5\frac{11}{20}$ | 49. 15% |
| 14. $2\frac{9}{25}$ | 50. 30% |
| 15. $2\frac{8}{25}$ | 51. 60% |
| 16. 12% | 52. 120% |
| 17. 120% | 53. 70% |
| 18. 252% | 54. 80% |
| 19. 257.5% | 55. 50 |
| 20. 158.75% | 56. 140 |
| 21. 140 | 57. 40 |
| 22. 0.21 | 58. 8.1 |
| 23. 40 | 59. 125 |
| 24. 22.5 | 60. 20 |
| 25. 0.2 | 61. $120 \div 2 = 60$ mph |
| 26. 0.36 | 62. $3 \times 4\frac{1}{3} = 13$ miles |
| 27. 0.36 | 63. 5 min = 300 sec
$(300 \div 30) \times 40 = 400$ |
| 28. 4.5 | 64. $1,400 \div 3.5 = 400$ mph |
| 29. 0.875 | 65. $\frac{18}{4} = 24$ days |
| 30. 1.75 | 66. $15 \times 2 = 30$
$30 - 10 = 20$
$20 \div 5 = 4$ wins |
| 31. 1600 | 67. $25 - 10 = 15$
$15 \div 3 = 5$ (miles) |
| 32. 0.36 | 68. $32 - 8 = 24$
$24 \div 4 = 6$ Times |
| 33. 0.032 | 69. $9 \times 4 = 36$
$36 - 20 = 16$
$16 \div 2 = 8$ Coupons |
| 34. 0.7 | |
| 35. 0.0125 | |
| 36. 0.08 | |

MAP 259+ (T2) Issue 10

70. $130 \div 10 = 13$
 $13 - 3 = 10$
 $10 \div 5 = 2$ Targets
71. $0.01 \times \sqrt{100} = 0.01 \times 10 = 0.1$
72. $66 \times 15\% = 9.9$
 $66 + 9.9 = \$75.90$
73. 6 miles = 3(2 miles)
 $3(40 \text{ min}) = 120 \text{ min} = 2 \text{ hrs}$
74. $4 \times 1.5 = 6 \text{ mi}$
 $4 \times (\frac{1}{2} \text{ hour}) = 2 \text{ hrs}$
75. $3 \times 7 + 1 = 22$
76. $43 - 1 = 42$
 $42 \div 3 = 14$
77. $15 \times 8 = 120$ (panels a day for a washer)
 $120 \times 5 = 600$ panels for 5 washers
 $1200 \div 600 = 2 \text{ days}$
78. (a) false
 No. Only a dog can do it.
 (b)
 1) a dog sails the boat.
 2) the dog takes dog 2.
 3) the dog takes a cat.
 4) the dog takes cat 2.
 5) the dog takes dog 3.
 6) the dog takes cat 3.
79. 5:00 P.M.
 The least common multiple of 30 and 40 is 120.
 So, you will hear both bell ring in 120 min, or at 5:00 P.M.
80. $900 \div 50000 = 1.8\%$
 $80000 \times 1.8\% = \$1440.00$
81. $\frac{500000}{100} \times 0.36 \times 5$
 $= 5000 \times 0.36 \times 5$ (cancellation)
 $= 50 \times 36 \times 5$ (moving decimal)
 $= 10 \times 180 \times 5$
 $= 1800 \times 5$
 $= \$9000.00$
82. $1 + 20\% = 1.2$
 $60 \times 1.2 = \$72$

83. B
84. $\frac{\text{tax}}{\text{cost without tax}} = \frac{54-50}{50} = \frac{4}{50} = 8\%$

85. 50
 The puzzle is solved as below.

60	30	10
10	20	70
30	50	20

86. 20
87. 30
88. $60 + 3 = \$63.00$
89. A
 Let us use W, B, G, and R to represent the four pairs of socks: white, black, green and red. There are 6 possible pairs
 WB, WG, WR,
 BG, BR,
 GR.
90. D
 Let us use W, B, G, and R to distinguish them. There are 10 possible pairs
 WW, WB, WG, WR,
 BB, BG, BR,
 GG, GR,
 RR.
91. $0.\bar{3}$
92. $0.\bar{6}$
93. $0.\bar{1}$
94. $0.\bar{2}$
95. $0.\bar{3}$
96. $0.\bar{4}$
97. $0.\bar{5}$
98. $0.\bar{6}$
99. $0.\bar{7}$
100. $0.\bar{8}$

Answer Key

- | | |
|---------------------------|-----------------------|
| 1. 90 | 35. -5 |
| 2. 50% | 36. 0.2 |
| 3. 25% | 37. $y = -9$ |
| 4. 7 | 38. $x = 2$ |
| 5. 400% | 39. -3 |
| 6. 120 | 40. $x = -4$ |
| 7. 40 | 41. $x^2 + 10x + 16$ |
| 8. $\frac{15}{11}$ | 42. $x^2 + 11x + 18$ |
| 9. $\frac{6}{5}$ | 43. $x^2 + 6x + 8$ |
| 10. $\frac{1}{4}$ | 44. $3x^2 + 22x + 24$ |
| 11. 250 | 45. $x^2 + 9x + 14$ |
| 12. $\frac{1}{3}$ | 46. $x^2 + 8x + 12$ |
| 13. 350 | 47. $x^2 + 8x + 15$ |
| 14. 37.5 | 48. $x^2 + 12x + 27$ |
| 15. 5.25 | 49. $2x^2 - 3x - 9$ |
| 16. 120 | 50. $2x^2 + 7x + 6$ |
| 17. 3.49 | 51. B |
| 18. 190 | 52. A |
| 19. 20 | 53. C |
| 20. $13\frac{19}{36}$ | 54. B |
| 21. $x = -\frac{3}{2}$ | 55. C |
| 22. $x = 5$ | 56. B |
| 23. $x = -2$ | 57. A |
| 24. $x = -5$ | 58. 5 |
| 25. $x = 1$ | 59. C |
| 26. $x = -4$ | 60. D |
| 27. $x = 1$ | 61. B |
| 28. $3(x + 1) = 2$ | 62. A |
| $3x + 3 = 2$ | 63. 14 |
| $3x = -1$ | 64. A |
| $x = -\frac{1}{3} = -1/3$ | 65. D |
| 29. $x = -3$ | 66. D |
| 30. $x = -3$ | 67. B |
| 31. $x = 2$ | 68. B |
| 32. 5 | 69. B |
| 33. $x = -4$ | $30 - 18 = 12$ |
| 34. $x = -1$ | $12 \div (4 - 2) = 6$ |
| | 70. D |

Answer Key

1. $x = 2$
2. 5
3. $x = -4$
4. $x = -1$
5. -5
6. 0.2
7. $y = -9$
8. $x = 2$
9. -3
10. $x = -4$
11. 6
12. 5
13. 7
14. 4
15. 7
16. 2
17. 5
18. 5
19. 9
20. 2
21. $x^2 + 10x + 16$
22. $x^2 + 11x + 18$
23. $x^2 + 6x + 8$
24. $3x^2 + 22x + 24$
25. $x^2 + 9x + 14$
26. $x^2 + 8x + 12$
27. $x^2 + 8x + 15$
28. $x^2 + 12x + 27$
29. $2x^2 - 3x - 9$
30. $2x^2 + 7x + 6$
31. $x^2 + 4x + 3$
32. $x^2 + 5x + 6$
33. $2x^2 + 5x + 3$
34. $6x^2 + 11x + 3$
35. $6x^2 + 13x + 6$
36. $6x^2 + 5x - 6$
37. $6x^2 - 13x + 6$
38. $4x^2 + 16x + 15$
39. $4x^2 - 4x - 15$
40. $4x^2 + 4x - 15$
41. $(2x + 21)(3x + 2) = 0$
 $x = -21/2$ or $-2/3$
42. $(x + 42)(6x + 1) = 0$
 $x = -42$ or $-1/6$
43. $4(2x + 3)(4x + 1) = 0$
 $x = -3/2$ or $-1/4$
44. $2(x - 1)(8x + 3) = 0$
 $x = 1$ or $-3/8$
45. $6(x - 3)(8x + 1) = 0$
 $x = 3$ or $-1/8$
46. 5.25
47. 400%
48. $20 \times 90\% = 18$
or
 $18 \div 20 = 90\%$
49. 6.25
50. $\frac{1}{3} \times 60 = 20$
51. $30 \div 40 = 0.75 = 75\%$
52. 120
53. 400%
54. 200
55. 35.6
56. $440 \times 25\% = 110$
57. 120
58. $85^2 = 7225$
59. 61300
60. 1960000
61. 0.0169
62. 0.0576
63. 4.5
64. 1.35
65. 2
66. -125
67. $\sqrt{1\frac{2}{3} \times 3\frac{3}{4}} = \sqrt{\frac{5}{3} \times \frac{15}{4}} = \sqrt{\frac{25}{4}} = \frac{5}{2} = 2\frac{1}{2}$
68. -0.28
69. 0.4
70. $0.75 \times 200 = 150$ (from students)
 $250 - 150 = 100$ (from adults)
 $100 \div 1.25 = 80$ (adult tickets) were sold.
71. $4 \times 10 \times 10 \times 5 = 2000$

MAP 279+ (T2) Issue 10

72. A
 $32 \times 16 = 512$
 $512 - \frac{1}{4}(256\pi)$
 $= 512 - 64\pi$
73. $\frac{1}{2} = 1/2$
74. C
75. 24 min = 0.4 hr
 $0.4 \times 5 = 2$
 $10 \times 5 = 50$ pages
76. $\frac{2}{8} = \frac{1}{4} = 1/4$
77. $300 + 15 \times 80 = 1500$
78. B
 $500 + 10 \times 90 = 1400$
Plan A: $1500 - 1300 = 200$
Plan B: $1400 - 1300 = 100$
79. 12 min 15 sec = $12\frac{1}{4}$ min
 $8 \times 12\frac{1}{4} = 98$ min = 1 hr & 38 min
80. The total cost of the car:
 $9600 + 6900 = 16500$
 $16500 - 7500 = 9000$
 $9000 \div 3000 = \$3.00$
81. $15 + 20 = 35$
82. $80 \div 4 = 20$
 $60 \div 4 = 15$
 $20^2 - 15^2 = 400 - 225 = 175$ sq. in
83. $\frac{1}{2} \times \frac{1}{2} = \frac{1}{4} = 1/4$
84. C
85. D

Answer Key

$$\begin{aligned} 1. \quad \sin(A) &= \frac{20}{52} = \frac{5}{13} \\ \cos(A) &= \frac{48}{52} = \frac{12}{13} \\ \tan(A) &= \frac{20}{48} = \frac{5}{12} \end{aligned}$$

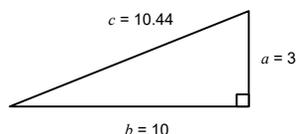
2. To figure out $\cos(A)$, we do not need to know about the measure of $\angle A$. Instead, $\cos^2(A) = 1 - \sin^2(A) = .91 \Rightarrow \cos(A) \approx 0.95$.

3. On the other hand, $\tan(A) = \frac{\sin(A)}{\cos(A)} \approx \frac{.3}{.95} \approx 0.32$

4. The value of $c = a/\sin(A) = 10/0.3 = 33\frac{1}{3}$.

5. The value of $b = c \cdot \cos(A) = 33\frac{1}{3} \times .95 = 31.66$.

6. Since $\tan(A) = 0.3$, let's assume $a = 3$, $b = 10$. The value of $c = \sqrt{109} = 10.44$. Thus, $\sin(A) = \frac{a}{c} = 3/10.44 \approx 0.29$



7. $\cos(A) = \frac{b}{c} = \frac{10}{10.44} \approx 0.96$

8. $\sec(A) = \frac{c}{b} = \frac{10.44}{10} \approx 1.04$

```

7sin(40)
4.499513268
    
```

9.

```

100/sin(55)
122.0774589
    
```

10.

11. There is insufficient information to solve y.

```

sqrt(7^2-3^2)
6.32455532
    
```

12.

It shows the angle is 36.86° .

13. $x \cdot \sin(30^\circ) = 12 \Rightarrow x = 12/\sin(30^\circ) = 24$ ft.

14. $a = 200\sin(A) \approx 159.727$

$b = 200\cos(A) \approx 120.363$

```

200sin(53)
159.727102
200cos(53)
120.3630046
    
```

15. To solve c , use cosine, instead of sine since $\cos(A) = \frac{200}{c}$. Thus, we have $c = \frac{200}{\cos(41^\circ)} \approx 265$

To solve a , use tangent since $\tan(A) = \frac{a}{200}$. Thus, we have $a = 200 \cdot \tan(A) \approx 173.86$.

```

200/cos(41)
265.0025987
200tan(41)
173.8573476
    
```

```

sin(53)
.79863551
cos(53)
.6018150232
tan(53)
1.327044822
    
```

16.

17. .60

18. 1.32

19. $\sin(A) = x/120 \Rightarrow x = 120 \cdot \sin(A) = 95.83$

```

120sin(53)
95.83626121
    
```

20. $\frac{1}{\cos(53^\circ)} \approx 1.67$

21. $\frac{1}{\sin(53^\circ)} \approx 1.25$

22. False $|\sin(A)| \leq 1$

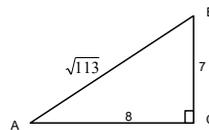
23. True

24. True

25. False $\sin^2(A)$ means $[\sin(A)]^2$

26. $\tan(\angle A) = \frac{7}{8}$ tells you that the ratio of the two legs is 7:8.

$$\sin(\angle A) = \frac{7}{\sqrt{113}}$$



27. $\sin(\angle B) = \frac{8}{\sqrt{113}}$

After-School Algebra 2 (T2) Issue 10

28. $\cos(\angle A) = \frac{8}{\sqrt{113}}$

29. $\cos(\angle B) = \frac{7}{\sqrt{113}}$

30. $BC = 400 \cdot \tan(35^\circ)$

$AC = 400 \cdot \tan(47^\circ)$

$AB = AC - BC = 400(\tan(47^\circ) - \tan(35^\circ)) = 148.86$

31. $AD = h \cdot \tan(58^\circ)$

$AC = h \cdot \tan(50^\circ)$

$DC = AD - AC$

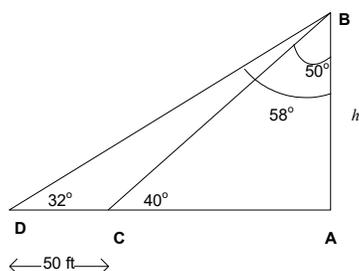
$= h \cdot \tan(58^\circ) - h \cdot \tan(50^\circ)$

$= h \{ \tan(58^\circ) - \tan(50^\circ) \}$

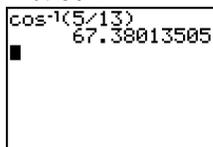
$50 = h \{ \tan(58^\circ) - \tan(50^\circ) \}$

$h = 50 / \{ \tan(58^\circ) - \tan(50^\circ) \}$

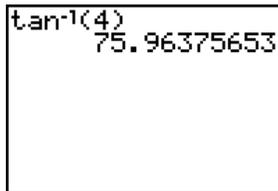
$h = 122.37$ (ft)



32. $\cos(\angle C) = \frac{5}{13}$. Thus, $\angle C = \cos^{-1}(\frac{5}{13})$. Use TI-83 to solve the problem as below. We find out that $\angle C = 67.38^\circ$.



33. $\tan(\angle C) = 20/5 = 4$. Thus, $\angle C = \tan^{-1}(4) = 75.96^\circ$.



34. Since $\sin(\angle P) = \frac{1}{3}$ tell you that the ratio between PR:PQ = 3:1. Let's assume PR=3, PQ=1, thus,
 $\tan(\angle P) = 1/\sqrt{8}$

35. $\tan(\angle R) = \sqrt{8}$ (

36. $\sqrt{8}/3 = 2\sqrt{2}/3$

37. 60

38. 9

39. 4

40. $\frac{2}{3}$

41. -2

42. 9

43. 8

44. 0.1

45. 20

46. 25

47. 80

48. 0.3

49. 3

50. -1

51. 20

52. -3

53. -10

54. 0.2

55. 4/9

56. 6/11

57. 4

58. 5

59. $\frac{2}{3}$

60. 5/4

61. 5/2

62. $-\frac{1}{6}$

63. $\frac{28+33}{72} = \frac{61}{72}$

64. $\frac{3}{4}$

65. $\frac{4+7-6}{28} = \frac{5}{28}$

66. $\frac{2}{7}$

67. $\frac{7 \cdot \frac{1}{2} \cdot \frac{1}{35}}{2 \cdot \frac{1}{2} \cdot \frac{1}{5}} = \frac{1 \cdot 1}{2 \cdot 5} = \frac{1}{10}$

68. $\frac{-12}{16} \cdot \frac{-32}{18} = \frac{4}{3}$

69. $\frac{2x}{7}$

70. $\frac{-8x}{3y^2}$

71. $\frac{2a}{5b}$

72. $\frac{6xy^2}{7z}$

73. $\frac{-2xy}{9}$

74. $\frac{3y}{5}$

75. $\frac{-x}{2y}$

76. x

77. 3x

78. $\frac{-y}{7x}$

79. $\frac{-y^2}{2x^2}$

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$$80. \frac{3x^3}{4}$$

$$81. \frac{5x^2z}{2y}$$

$$82. \frac{5 \cdot 14 \cdot 3a^3xy}{7 \cdot 15 \cdot 8axy} = \frac{a^2}{4}$$

$$83. \frac{7x^2y}{9xy^3} \cdot \frac{2x^2y^2}{3x^4} = \frac{14x^4y^3}{27x^5y^3} = \frac{14}{27x}$$

$$84. -\frac{6 \cdot 30x^4y^2}{9 \cdot 48xy^4} = -\frac{5x^3}{12y^2}$$