

RUN - SAMPLE 1 - Number Sense

Problems (NOTE: All Sample Tests have 80 problems, while the real test has 75 problems)
Write your answer to the LEFT of the problem number.

Easier Problems (1 - 40, suggested 12 minutes)

1. If 9 workers can lay 6 bricks in 10 hours, how many workers are needed to lay 8 bricks in 5 hours? (Express your answer in simplest form.)
2. I can choose one of 5 possible starters, four of 5 possible moves, and two of 2 possible genders for my next Pokemon. How many total choices do I have?
3. Two trains are initially 10 miles apart on a long track. The train to the east travels westward at 7 miles per hour, while the train to the west travels westward at 6 miles per hour. After how many hours will they crash? Express your answer as a simplified fraction.
4. In my class, test scores range from $-\infty$ to $+\infty$. My average test score over 5 tests is 5. As a decimal to the nearest tenth, what average score must I achieve on my next two tests to raise my average by 4 points? (Note: a negative raise is a decrease.)
5. At 10 past 11 o'clock what is the angle formed by the minute hand and the hour hand? (Express your answer as a decimal to the nearest tenth.)
6. An ant walks parallel to the coordinate axes (taxicab) to get from $A(8, 7)$ to $B(17, 47)$. A butterfly flies from A to B. How much more distance does the ant travel than the butterfly?
7. In my class, test scores range from $-\infty$ to $+\infty$. My average test score over 2 tests is 8. What must I score on my next test to bring my average to a 6?
8. In my class, test scores range from $-\infty$ to $+\infty$. My average test score over 5 tests is 8. What must I score on my next test to raise my average by -2 points? (Note: a negative raise is a decrease.)
9. At 0 to 2 o'clock what is the angle formed by the minute hand and the hour hand? (Express your answer as a decimal to the nearest tenth.)
10. Find the gcd of 63 and 56.
11. I can choose one of 5 possible starters, one of 2 possible moves, and one of 5 possible genders for my next Pokemon. How many total choices do I have?
12. If 6 workers can lay 6 bricks in 9 hours, how many bricks can 8 workers lay in 6 hours? (Express your answer in simplest form.)
13. An ant walks parallel to the coordinate axes (taxicab) to get from $A(5, 10)$ to $B(26, 30)$. A butterfly flies from A to B. How much more distance does the ant travel than the butterfly?
14. A solution of 9 liters with 30% not acid (and the rest acid) is mixed with 10 liters of 80% acid. What percent of the resulting solution is acid, as a fraction?

15. I can choose two of 3 possible starters, two of 5 possible moves, and one of 5 possible genders for my next Pokemon. How many total choices do I have?
16. Find the lcm of 42 and 35.
17. An ant walks parallel to the coordinate axes (taxicab) to get from A(10, 5) to B(15, 17). A butterfly flies from A to B. How much more distance does the ant travel than the butterfly?
18. Two trains are initially 8 miles apart on a long track. The first train runs towards the second at 6 miles per hour, and the second train runs towards the first at 9 miles per hour. After how many hours will they crash? Express your answer as a simplified fraction.
19. Find the gcd of 42 and 35.
20. The probability it will not drizzle today in San Diego is 30 percent. If it drizzles today, the probability it will not drizzle tomorrow will be 0 percent; otherwise it is 10 percent. What is the probability that it will drizzle tomorrow, as a decimal percent?
21. Find the gcd of 70 and 60.
22. An ant walks parallel to the coordinate axes (taxicab) to get from A(7, 8) to B(14, 32). A butterfly flies from A to B. How much more distance does the ant travel than the butterfly?
23. The probability it will not drizzle today in San Diego is 60 percent. If it drizzles today, the probability it will drizzle tomorrow will be 40 percent; otherwise it is 40 percent. What is the probability that it will drizzle tomorrow, as a decimal percent?
24. The probability it will drizzle today in San Diego is 50 percent. If it drizzles today, the probability it will drizzle tomorrow will be 50 percent; otherwise it is 80 percent. What is the probability that it will drizzle tomorrow, as a decimal percent?
25. I have 2 fire Pokemon, 1 of which are female, and 2 water Pokemon, 1 of which are male. I need to choose a fire and a water Pokemon for my next duel. How many ways can I do so, if at least one of the Pokemon must be female?
26. Find the lcm of 36 and 30.
27. A solution of 5 liters with 70% acid is mixed with 6 liters of 90% acid. What percent of the resulting solution is acid, as a fraction?
28. Find the lcm of 35 and 30.
29. Find the gcd of 64 and 48.
30. An ant walks parallel to the coordinate axes (taxicab) to get from A(9, 9) to B(18, 49). A butterfly flies from A to B. How much more distance does the ant travel than the butterfly?
31. I have 3 fire Pokemon, 2 of which are female, and 4 water Pokemon, 3 of which are female. I need to choose a fire and a water Pokemon for my next duel. How many ways can I do so, if at least one of the Pokemon must be female?
32. Find the lcm of 49 and 35.

33. The probability it will drizzle today in San Diego is 90 percent. If it drizzles today, the probability it will not drizzle tomorrow will be 20 percent; otherwise it is 60 percent. What is the probability that it will drizzle tomorrow, as a decimal percent?
34. I run 9 miles per hour for 8 hours and bike 10 miles per hour for 10 hours. What is my average speed in miles per hour? Express your answer as a simplified fraction.
35. I have 5 fire Pokemon, 4 of which are male, and 4 water Pokemon, 1 of which are male. I need to choose a fire and a water Pokemon for my next duel. How many ways can I do so, if at least one of the Pokemon must be female?
36. An ant walks parallel to the coordinate axes (taxicab) to get from A(6, 7) to B(11, 19). A butterfly flies from A to B. How much more distance does the ant travel than the butterfly?
37. Find the gcd of 35 and 25.
38. If 7 workers can lay 10 bricks in 5 hours, how many hours will it take 6 workers to lay 5 bricks? (Express your answer in simplest form.)
39. An ant walks parallel to the coordinate axes (taxicab) to get from A(7, 9) to B(12, 21). A butterfly flies from A to B. How much more distance does the ant travel than the butterfly?
40. Find the gcd of 80 and 60.

Harder Problems (41 - 80, suggested 8 minutes)

41. The probability it will drizzle today in San Diego is 20 percent. If it drizzles today, the probability it will not drizzle tomorrow will be 10 percent; otherwise it is 50 percent. What is the probability that it will drizzle tomorrow, as a decimal percent?
42. Find the lcm of 132 and 110.
43. In my class, test scores range from $-\infty$ to $+\infty$. My average test score over 5 tests is 15. What must I score on my next test to raise my average by -5 points? (Note: a negative raise is a decrease.)
44. Find the gcd of 90 and 80.
45. Find the gcd of 90 and 81.
46. Find the gcd of 143 and 130.
47. The probability it will drizzle today in San Diego is 70 percent. If it drizzles today, the probability it will drizzle tomorrow will be 90 percent; otherwise it is 70 percent. What is the probability that it will drizzle tomorrow, as a decimal percent?
48. An ant walks parallel to the coordinate axes (taxicab) to get from A(9, 14) to B(18, 54). A butterfly flies from A to B. How much more distance does the ant travel than the butterfly?
49. A solution of 15 liters with 90% acid is mixed with 10 liters of 10% acid. What percent of the resulting solution is acid, as a fraction?
50. Find the lcm of 112 and 88.

51. An ant walks parallel to the coordinate axes (taxicab) to get from A(8, 12) to B(19, 72). A butterfly flies from A to B. How much more distance does the ant travel than the butterfly?
52. I can choose two of 4 possible starters, two of 7 possible moves, and one of 8 possible genders for my next Pokemon. How many total choices do I have?
53. I can choose one of 2 possible starters, one of 6 possible moves, and one of 3 possible genders for my next Pokemon. How many total choices do I have?
54. In my class, test scores range from $-\infty$ to $+\infty$. My average test score over 4 tests is 8. What must I score on my next test to bring my average to a 11?
55. Two trains are initially 11 miles apart on a long track. The train to the east travels westward at 14 miles per hour, while the train to the west travels westward at 9 miles per hour. After how many hours will they crash? Express your answer as a simplified fraction.
56. An ant walks parallel to the coordinate axes (taxicab) to get from A(11, 14) to B(26, 126). A butterfly flies from A to B. How much more distance does the ant travel than the butterfly?
57. I have 4 fire Pokemon, 2 of which are male, and 7 water Pokemon, 4 of which are male. I need to choose a fire and a water Pokemon for my next duel. How many ways can I do so, if at least one of the Pokemon must be female?
58. Find the gcd of 144 and 90.
59. An ant walks parallel to the coordinate axes (taxicab) to get from A(14, 13) to B(23, 53). A butterfly flies from A to B. How much more distance does the ant travel than the butterfly?
60. An ant walks parallel to the coordinate axes (taxicab) to get from A(12, 15) to B(60, 79). A butterfly flies from A to B. How much more distance does the ant travel than the butterfly?
61. In my class, test scores range from $-\infty$ to $+\infty$. My average test score over 8 tests is 10. As a decimal to the nearest tenth, what average score must I achieve on my next two tests to raise my average by 3 points? (Note: a negative raise is a decrease.)
62. I can choose one of 5 possible starters, four of 8 possible moves, and two of 8 possible genders for my next Pokemon. How many total choices do I have?
63. I have 5 fire Pokemon, 3 of which are female, and 3 water Pokemon, 2 of which are female. I need to choose a fire and a water Pokemon for my next duel. How many ways can I do so, if at least one of the Pokemon must be female?
64. If 8 workers can lay 8 bricks in 14 hours, how many hours will it take 12 workers to lay 14 bricks? (Express your answer in simplest form.)
65. At 40 to 9 o'clock what is the angle formed by the minute hand and the hour hand? (Express your answer as a decimal to the nearest tenth.)
66. Find the gcd of 144 and 132.

67. At 50 past 12 o'clock what is the angle formed by the minute hand and the hour hand? (Express your answer as a decimal to the nearest tenth.)
68. An ant walks parallel to the coordinate axes (taxicab) to get from A(16, 12) to B(31, 124). A butterfly flies from A to B. How much more distance does the ant travel than the butterfly?
69. Two trains are initially 9 miles apart on a long track. The first train runs towards the second at 8 miles per hour, and the second train runs towards the first at 11 miles per hour. After how many hours will they crash? Express your answer as a simplified fraction.
70. If 8 workers can lay 13 bricks in 9 hours, how many bricks can 13 workers lay in 9 hours? (Express your answer in simplest form.)
71. Find the gcd of 110 and 90.
72. A solution of 10 liters with 20% not acid (and the rest acid) is mixed with 11 liters of 80% acid. What percent of the resulting solution is acid, as a fraction?
73. Find the lcm of 196 and 154.
74. I have 4 fire Pokemon, 1 of which are female, and 3 water Pokemon, 2 of which are male. I need to choose a fire and a water Pokemon for my next duel. How many ways can I do so, if at least one of the Pokemon must be female?
75. If 8 workers can lay 8 bricks in 13 hours, how many workers are needed to lay 8 bricks in 9 hours? (Express your answer in simplest form.)
76. I run 15 miles per hour for 12 hours and bike 12 miles per hour for 10 hours. What is my average speed in miles per hour? Express your answer as a simplified fraction.
77. The probability it will not drizzle today in San Diego is 20 percent. If it drizzles today, the probability it will not drizzle tomorrow will be 70 percent; otherwise it is 90 percent. What is the probability that it will drizzle tomorrow, as a decimal percent?
78. The probability it will not drizzle today in San Diego is 20 percent. If it drizzles today, the probability it will drizzle tomorrow will be 90 percent; otherwise it is 100 percent. What is the probability that it will drizzle tomorrow, as a decimal percent?
79. Find the lcm of 99 and 81.
80. An ant walks parallel to the coordinate axes (taxicab) to get from A(9, 12) to B(57, 76). A butterfly flies from A to B. How much more distance does the ant travel than the butterfly?

Solutions

1. 24

2. 25

3. 10

4. 19

5. 85

6. 8

7. 2

8. -4

9. 60

10. 7

11. 50

12. $16 / 3$

13. 12

14. $1430 / 19$

15. 150

16. 210

17. 4

18. $8 / 15$

19. 7

20. 97

21. 10

22. 6

23. 40

24. 65

25. 3

26. 180

27. $890 / 11$

28. 210

29. 16

30. 8

31. 11

32. 245

33. 76

34. $86 / 9$

35. 16

36. 4

37. 5

38. 35 / 12
39. 4
40. 20
41. 58
42. 660
43. -15
44. 10
45. 9
46. 13
47. 84
48. 8
49. 58
50. 1232
51. 10
52. 1008
53. 36
54. 23
55. 11 / 5
56. 14
57. 20
58. 18
59. 8
60. 32
61. 25
62. 9800
63. 13
64. 49 / 3
65. 130
66. 12
67. 85
68. 14
69. 9 / 19
70. 169 / 8
71. 10
72. 80
73. 2156
74. 6
75. 104 / 9
76. 150 / 11

77. 26
78. 92
79. 891
80. 32