ADDITION

1. 907
   8,629
   93
   + 878

2. 134
   24
   + 80

3. 7 ft. 6 in
   5 ft. 4 in.
   +13 ft. 7 in.

4. 6′ 5″
   5′ 9″
   +3′ 1″

5. 1.023
   12.56
   + 721.847

6. 2.17
   3.68
   +10.251

7. 7 ½
   6 ¾
   + 11 9/16

8. 30° + 71° =

9. 3 11/16
   2 3/32
   7 ⅛
   + 11 ¾

10. 4 yds. 1 ft. 4 ¾ in.
    2 ft. 1 9/16 in.
    2 yds. 2 ft. 10 ¼ in.
    + 27 yds. 3 13/32 in.

SUBTRACTION

11. 9,304
    1,501

12. 782
    647

13. 22,617
    4,199

14. 6′ 4″
    2′ 8″

15. 14 ft. 1 ⅛ in.
    9 ft. 6 in.

16. 18.41
    .93

17. 19.027
    .329

18. 25.121
    1.784

19. 24 9/32
    11 3/16

20. 56° 17′ 12″
    14° 32′ 51″

MULTIPLICATION

21. 46 × 9

22. 3,116 × 21

23. .07 × .08 =

24. 6.721 × 3

25. 16.327 × 1.06

26. ¼ × ⅜ =

27. 12% of 417 =

28. 2ft.3 in. × 121 =

29. CHANGE 2 yds. 2 ft. 1 ½ in. to inches _____

30. CHANGE 62 yds. 1 ft. 3 ⅞ in. to feet and inches _____

DIVISION

31. 728 ÷ 7 =

32. 819 ÷ 9 =

33. 519/ 6228

34. 302/ 14, 194

35. .4/ 10.8

36. 8.4/ 28

37. .27 / .09 =

38. 3/10 ÷ 1 2/5 =

39. .040/8

40. ⅓ ÷ 2½ =

In the following, the formulas in Column II match a term in Column I. Match the formulas to their proper term in Column I

Column I	Column II
41. _____ The diameter of a circle	(A) $A = S^2$
42. _____ The area of a circle when "r" is known	(B) $P = l + l + w + w$
43. _____ The volume of a cylinder	(C) $d = 2r$
44. _____ The area of a rectangle	(D) $V = \pi r^2 h$
45. _____ The area of a square	(E) $A = b h$
46. _____ The volume of a rectangular solid	(F) $P = a + b + c$
47. _____ The area of a parallelogram	(G) $V = l w h$
48. _____ The perimeter of a rectangle	(H) $A = \pi r^2$
49. _____ The perimeter of a triangle	(I) $A = \frac{bh}{2}$
50. _____ The area of a triangle	(J) $A = lw$

SPACIAL AND MECHANICAL REASONING

51. In Figure #1, what is the area of the two triangles shown?

A. _____ square inches

B. _____ square inches

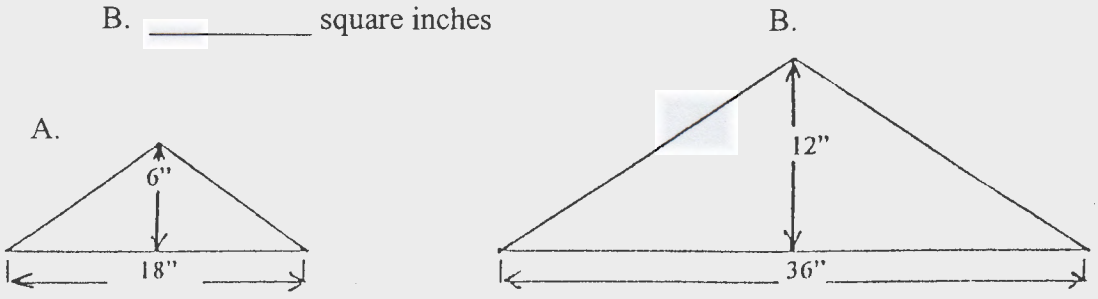
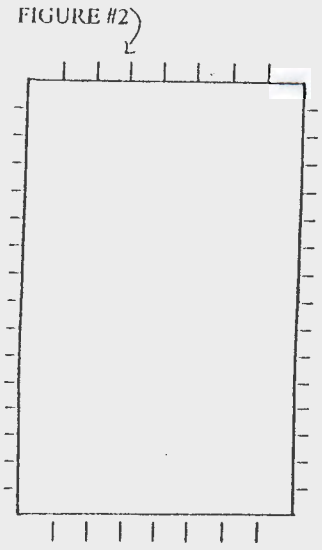


FIGURE #1

52. Figure #2 represents a 4′ × 8′ × 5/16″ sheet of plywood from which four (4) pieces having the following dimensions are to be cut:



1 piece 4′ × 4′

2 pieces 2′ × 2′

1 piece 2′ × 4′

What will be the dimensions of the scrap that remains?

Width _____

Length _____

53. What is the area of Figure #5? _____ square feet

54. What is the area of Figure #6? _____ square feet

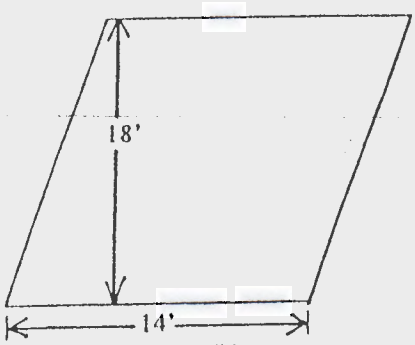


FIGURE #5

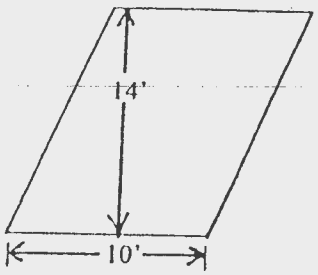


FIGURE #6

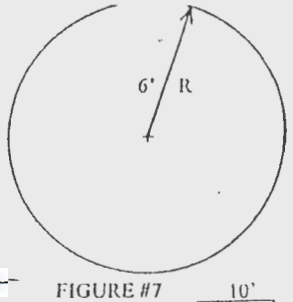


FIGURE #7

55. What is the diameter of Figure #7? _____

56. What is the circumference of Figure #7? _____

57. What is the area of Figure #7? _____ square feet

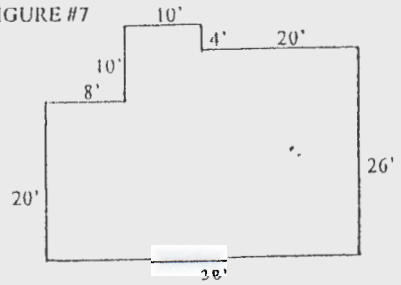


FIGURE #9

58. The perimeter of Figure #9 is _____

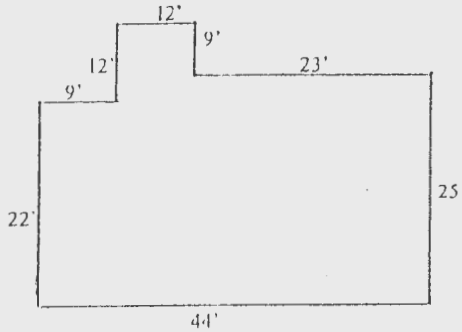


FIGURE #10

59. The perimeter of Figure #10 is _____

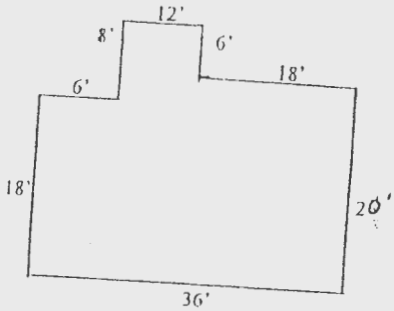


FIGURE #11

60. The perimeter of Figure #11 is _____

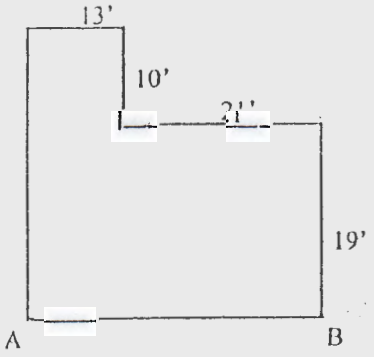


FIGURE #12

61. The distance from A to B in Figure #12 is _____

62. The distance from A to B in Figure #13 is _____

63. In Figure #14, the percent of workers included Under the heading "All Others" is _____

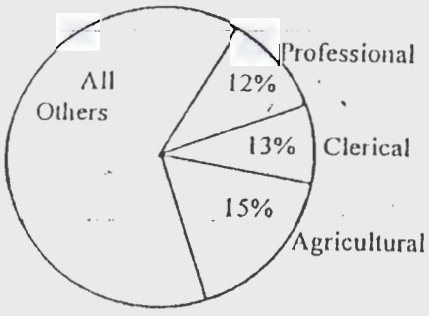


FIGURE #14

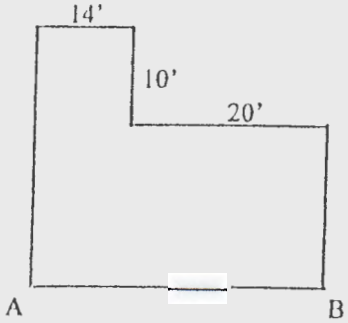


FIGURE #13

64. In Figure #15, the percent of workers included Under the heading "All Others" is _____

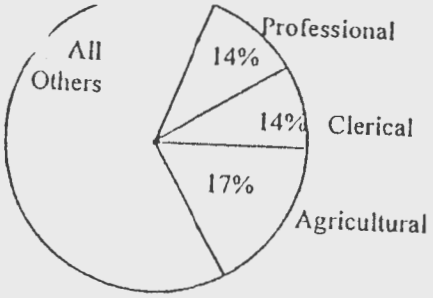


FIGURE #15

65. If ABC of Figure #18 is a right angle, how many Degrees are in X? _____

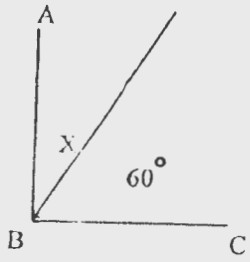


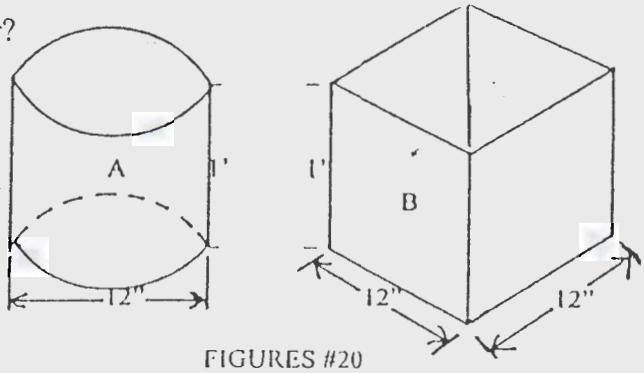
FIGURE #18

66. In Figure #20, which of the two blocks are larger?

A. _____

B. _____

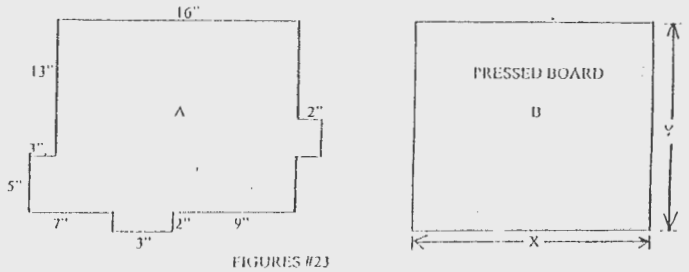
Equal _____



FIGURES #20

67. To make layout A in Figure #23, what are the minimum dimensions of the section of Pressed Board B, which can be used?

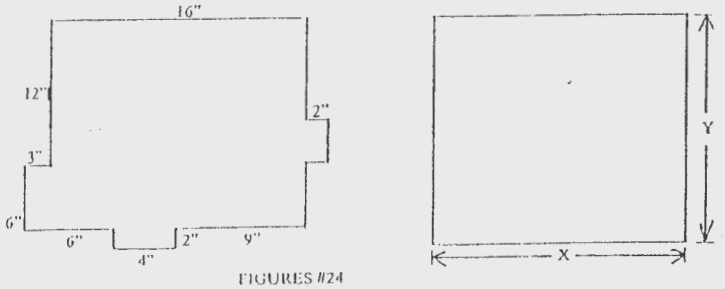
X = _____ Y = _____



FIGURES #23

68. To make Layout A in figure #24, what are the minimum dimensions of the section of Pressed Board B, which can be used?

X = _____ Y = _____



FIGURES #24

The following four questions are based on Figure #25:

69. What is the smallest unit of measurement shown on the ruler? _____

70. What is the measurement shown by the bracket No. 1? _____

71. What is the measurement shown by the bracket No. 2? _____

72. What is the measurement shown by the bracket NO. 3? _____

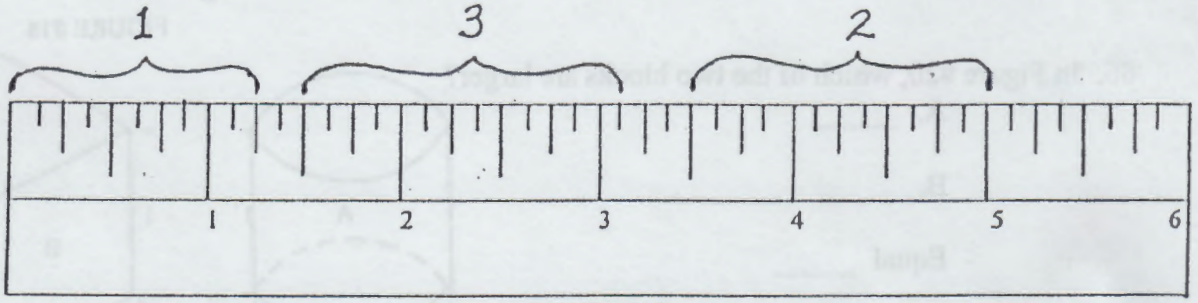


FIGURE #25

The following four questions are based on Figure#26:

73. What is the shortest unit of measurement shown on the ruler? _____

74. What is the difference between bracket No. 1 and bracket No. 2? _____

75. What is the measurement shown by bracket No. 2? _____

76. What is the sum of the measurements enclosed by brackets No. 3 and 2?

_____

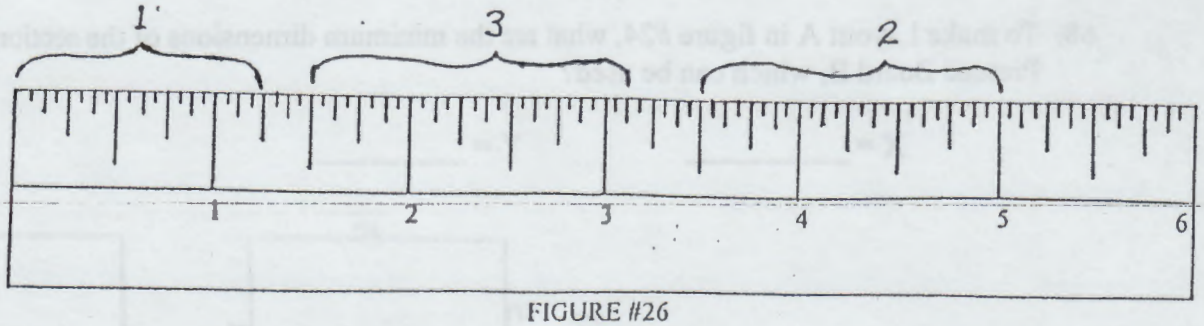


FIGURE #26

77. In Figure #27, what is the length indicated by D? _____

78. In Figure #27, what is the width indicated as W? _____

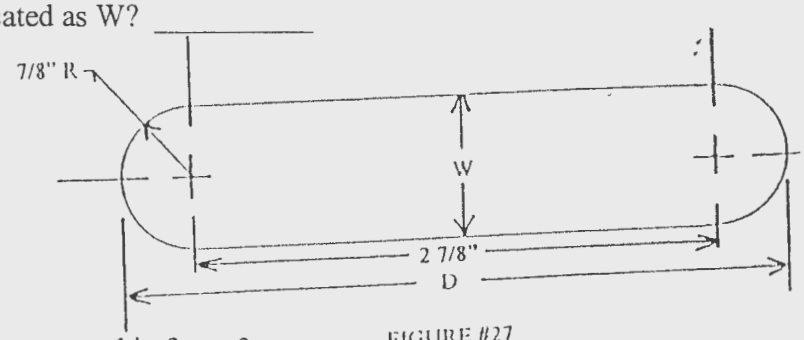


FIGURE #27

79. A room 13′ ×19′ × 8′ contains _____ cubic feet of space.

80. A room 16′ × 18 ′ × 9′ contains _____ cubic feet of space.

81. A rod weighs 7/8 lb. For each 3 inches in length. How much would a rod 7′ - 6″ weigh? _____

82. A rod weights 3⁄16 lb. For each inch in length. How much would a rod 6′ - 7″ weigh?

_____

83. A wire 9″ long is to be cut into ⅛″ pieces. How many pieces will there be?

_____

84. A wire 8″ in length is to be cut into ¼″ pieces. How many pieces will there be?

_____

85. Some finishing nails weigh 1.3 pounds per 100 nails. How many nails would there be in .52 pounds? _____

86. Some finishing nails weigh 1¼ pounds per 100 nails. How many nails would there be in .75 pounds? _____

87. A worker receives $200.00 for a regular 40-hour workweek, time and one-half for Saturday and double time for Sunday. This week he worked his regular Monday through Friday workweek, 6 hours on Saturday, and 1½ hours on Sunday. What were his total earnings for the week? _____

88. A worker receives $240.00 for a regular 40-hour workweek, time and one-half for Saturday and double time for Sunday. This week he worked his regular Monday through Friday workweek, 6 hours on Saturday and four hours on Sunday. What were his total earnings for the week? _____

FRACTION TO DECIMAL CONVERSIONS

89. Convert the fraction ¼ to a decimal. _____

90. Convert the fraction ⅝ to a decimal. _____

91. Convert the fraction 13/16 to a decimal. _____

92. Convert the fraction ⅜ to a decimal. _____

93. Convert the fraction ½ to a decimal. _____

DECIMAL TO FRACTION CONVERSIONS

94. Convert the decimal .45 to a fraction. _____

95. Convert the decimal .0625 to a fraction. _____

96. Convert the decimal .75 to a fraction. _____

97. Convert the decimal .70 to a fraction. _____

98. Convert the decimal .375 to a fraction. _____

CONVERSION OF WHOLE NUMBERS AND FRACTIONS OR DECIMALS

99. Convert 3.6667 to a fractional equivalent. _____

100. Convert 125 ¼ to a decimal equivalent. _____

ANSWER SHEET
Self-help Test

1. 10, 507
2. 238
3. 26 ft. 5 in.
4. 15' 3''
5. 735.430
6. 16.101
7. 25 13/16
8. 101°
9. 24 21/32
10. 35 yd. 0 ft. 7 31/32 in.
11. 7.803
12. 1.35
13. 18,418
14. 3' 8''
15. 4 ft. 7 1/8 in.
16. 17.48
17. 18.698
18. 23.337
19. 13 3/32
20. 41° 44' 21''
21. 414
22. 65,436
23. .0056
24. 20.163
25. 17,3066
26. 3/32
27. 50.04
28. 272 ft. 3 in.
29. 97 ½ in
30. 187 ft. 3 7/8 in.
31. 104
32. 91
33. 12
34. 47
35. 27
36. 3.3333
37. 3
38. 3/14
39. 200
40. 2/15
41. C
42. H
43. D
44. J
45. A
46. G
47. E
48. B
49. F
50. I
51. A-54 sq. in.
    216 sq. in.
52. Width 0
    Length 0
53. 252 sq. ft.
54. 140 sq. ft.
55. 12'
56. 37.6992
57. 113.0976 sq. ft.
58. 136
59. 156
60. 124
61. 34'
62. 34'
63. 60°
64. 55°
65. 30°
66. B
67. X = 21 Y = 20
68. X = 21 Y = 20
69. 1/8"
70. 1 ¼"
71. 1 ½"
72. 1 5/8"
73. 1/16 in.
74. ¼"
75. 1 ½ in.
76. 3 1/8 in.
77. 4 5/8"
78. 1 ¾"
79. 1,976
80. 2,592
81. 26 ¼ lbs.
82. 14 13/16 or 14.8125 lbs
83. 72
84. 32
85. 40
86. 60
87. $260.00
88. $342.00
89. .25
90. .625
91. .8125
92. .375
93. .5
94. 9/20
95. 1/16
96. 3/4
97. 7/10
98. 3/8
99. 3 2/3
100. 125.25