

# Ohio Operating Engineers

## Entrance Exam Tune Up



# Ohio Operating Engineers

## Addition and Subtraction

1.  $11 + 13 = \underline{\hspace{2cm}}$ .

- a. 13
- b. 24
- c. 1,113
- d. 1,979

2.  $61 + 16 = \underline{\hspace{2cm}}$ .

- a. 45
- b. 77
- c. 390
- d. 6116

3.  $78 + 0 = \underline{\hspace{2cm}}$ .

- a. 39
- b. 77
- c. 78
- d. 780

4. **Tony had 14 nails. Terry gave him another 12 nails. Later that day, Bill gave him 6 more.**

**How many nails does Tony have?**

- a. 8
- b. 14
- c. 20
- d. 32

5. **What would you have if you combined 99 with 341?**

- a. 350
- b. 400
- c. 440
- d. 1,330

6. **A 30-foot pipe has another 12-foot pipe welded onto it. How long is the new pipe?**

- a. 42 feet
- b. 43 feet
- c. 54 feet
- d. 60 feet

7. **A shipment of lumber weighs 369 pounds. A second shipment weighs 163 pounds. How much does the combination of the two shipments weigh?**

- a. 370 pounds
- b. 532 pounds
- c. 533 pounds
- d. 60,147 pounds

8.  $1,111 + 222 = \underline{\hspace{2cm}}$ .

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9. A spool of wire weighing 222 pounds has 33 pounds of wire added to it. What would be the total weight?

- a. 65
- b. 255
- c. 444
- d. 552

10. Carlos is standing on a scaffolding platform. With his tool belt and hard hat on, he weighs 229 pounds. Ritchie joins Carlos on the platform. Including his tool belt and hard hat, Ritchie weighs 232 pounds. If Ace, who weighs 260 pounds with his equipment, were to join them on the platform, what would their total weight be?

- a. 461 pounds
- b. 719 pounds
- c. 720 pounds
- d. 721 pounds

11.  $2,004 - 192 = \underline{\hspace{2cm}}$ .

- a. 84
- b. 102
- c. 1,812
- d. 2,196

12.  $4,628 - 29 = \underline{\hspace{2cm}}$ .

- a. 1,728
- b. 4,338
- c. 4,599
- d. 4,657

13. The top of a window frame's head is 50 inches high. The bottom of the window's sill is 32 inches high. What is the difference in height from the top of the head to the bottom of the sill?

- a. 18 inches
- b. 22 inches
- c. 27 inches
- d. 110 inches

14.  $260 - 0 = \underline{\hspace{2cm}}$ .

15.  $807 - 87 = \underline{\hspace{2cm}}$ .

16. A length of seven inches is sawed off of a 30-inch plank. How long would the plank become?

- a. 4 inches
- b. 14 inches
- c. 23 inches
- d. 25 inches

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17.  $1,250 - 93 =$  \_\_\_\_\_.

- a. 357
- b. 1,153
- c. 1,157
- d. 1,343

18. A job site has 256 feet of cable. If 77 feet is used, how much remains?

- a. 24
- b. 140
- c. 170
- d. 179

19. Patricia needs 78 welders for a project. She currently has 49. How many more does she need?

- a. 29
- b. 30
- c. 39
- d. 127

20. A scaffolding platform is rated to safely support 940 pounds. Carlos weighs 229 pounds, including all of his equipment. Ritchie weighs 232 pounds. Joan weighs 194 pounds with her equipment. If Carlos, Ritchie, and Joan were on the platform, how much *more* weight could the platform safely support?

- a. None; the weight of Carlos, Ritchie, and Joan already exceeds the weight limit.
- b. 285 pounds
- c. 479 pounds
- d. 1,401 pounds

## Extra Practice

$$415 + 572 + 27 = \underline{\hspace{2cm}}.$$

$$1,228 - 234 - 177 = \underline{\hspace{2cm}}.$$

$$365 + 52 - 26 = \underline{\hspace{2cm}}.$$

$$12,345 - 678 + 910 = \underline{\hspace{2cm}}.$$

$$87,654,321 + 65,432 + 23458 + 12 = \underline{\hspace{2cm}}.$$

$$1,237,896,543 - 543,768 - 47 = \underline{\hspace{2cm}}.$$

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## Multiplication and Division

21.  $7 \times 77 = \underline{\hspace{2cm}}$ .

- a. 70
- b. 84
- c. 497
- d. 539

22.  $704 \times 38 = \underline{\hspace{2cm}}$ .

- a. 742
- b. 26,752
- c. 70,438
- d. 181,704

23.  $38 \times 704 = \underline{\hspace{2cm}}$ .

- a. 26,752
- b. 38,704
- c. 100,704
- d. 181,704

24. A hammer specifically needed for the job site costs \$42. How much would 12 hammers cost at that price?

- a. \$12
- b. \$54
- c. \$420
- d. \$504

25. A truck weighs approximately 5,300 pounds. What would 15 trucks of that same size and style approximately weigh?

- a. 5,315 pounds
- b. 58,300 pounds
- c. 79,300 pounds
- d. 79,500 pounds

26. A company has seven job sites. At each of these sites, there are exactly eight scissor lifts. How many scissor lifts are at all of the job sites combined?

- a. 15
- b. 56
- c. 78
- d. 87

27. A job site has total of 342 steel pipes that are each 50 feet long. How many total feet of steel pipe does it have?

- a. 292
- b. 17,100
- c. 17,500
- d. 34,250

28.  $1,001 \times 27,141 = \underline{\hspace{2cm}}$ .

- a. 26,140
- b. 2,716,814
- c. 27,113,859
- d. 27,168,141

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29. One side of a square room measures 15 feet in length. If you needed cable to travel the length along all four walls, what minimum length would you need?

- a. 15
- b. 45
- c. 60
- d. 154

30.  $11,287 \times 1,121 =$  \_\_\_\_\_.

- a. 12,408
- b. 1,243,985
- c. 12,539,857
- d. 12,652,727

31.  $634 \div 2 =$  \_\_\_\_\_.

- a. 317
- b. 334
- c. 636
- d. 1,268

32.  $1,250 \div 5 =$  \_\_\_\_\_.

- a. 125
- b. 200
- c. 250
- d. 1,255

33.  $851 \div 23 =$  \_\_\_\_\_.

- a. 37
- b. 41
- c. 207
- d. 818

34.  $324 \div 18 =$  \_\_\_\_\_.

- a. 18
- b. 81
- c. 88
- d. 113

35.  $21,114 \div 621 =$  \_\_\_\_\_.

- a. 33
- b. 34
- c. 206
- d. 20,493

36. If it will take 21 cans of paint to complete three rooms of equal size, how many cans are needed for each room?

- a. 3
- b. 7
- c. 18
- d. 21

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37. Luis is an ironworker. Luis's paycheck totals \$2,480 after taxes. The paycheck was for 80 hours of work. After taxes, how many dollars did Luis make per hour?

- a. \$24
- b. \$25
- c. \$31
- d. \$80

38. If 4,380 concrete screws were used over 60 days of work, what is the average amount of screws used per day?

- a. 60
- b. 73
- c. 730
- d. 4,320

39. One electrical job requires 195 feet of wire, and a second job requires 225 feet. If the wire comes in 15-foot coils, how many coils will you need?

- a. 28
- b. 30
- c. 150
- d. 420

40. Gustavo has 930 plumbers, and 31 projects starting at the same time. If he equally distributed all of the plumbers across all of the project sites, how many plumbers would be at each site?

- a. 27
- b. 30
- c. 31
- d. 899

## Extra Practice

$$12 \times 12 = \underline{\hspace{2cm}}$$

$$144 \times 12 = \underline{\hspace{2cm}}$$

$$1726 \times 144 = \underline{\hspace{2cm}}$$

$$123,000 \times 3450 = \underline{\hspace{2cm}}$$

$$166,375 \div 25 = \underline{\hspace{2cm}}$$

$$391 \div 3 = \underline{\hspace{2cm}}$$

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## Fractions

41.  $\frac{4}{12}$  equals how many thirds?

- a.  $\frac{0}{3}$
- b.  $\frac{1}{3}$
- c.  $\frac{2}{3}$
- d.  $\frac{4}{3}$

42.  $\frac{6}{8}$  equals how many quarters?

- a.  $\frac{1}{4}$
- b.  $\frac{2}{4}$
- c.  $\frac{3}{4}$
- d.  $\frac{6}{4}$

43. Which of the following fraction pairs are equivalent fractions?

- a.  $\frac{1}{4}$  and  $\frac{1}{2}$
- b.  $\frac{1}{4}$  and  $\frac{3}{4}$
- c.  $\frac{1}{4}$  and  $\frac{4}{12}$
- d.  $\frac{1}{4}$  and  $\frac{8}{32}$

44. Which fraction represents  $\frac{8}{16}$  with the lowest common denominator?

- a.  $\frac{0}{2}$
- b.  $\frac{1}{2}$
- c.  $\frac{4}{8}$
- d.  $\frac{4}{12}$

45. Express  $\frac{12}{16}$  in quarters.

- a.  $\frac{1}{4}$
- b.  $\frac{1}{3}$
- c.  $\frac{2}{4}$
- d.  $\frac{3}{4}$

46. What is the denominator of  $\frac{24}{32}$ ?

- a.  $\frac{6}{8}$
- b. 8
- c. 24
- d. 32

47. Express  $\frac{12}{16}$  in eighths.

- a.  $\frac{6}{8}$
- b.  $\frac{7}{8}$
- c.  $\frac{8}{16}$
- d.  $\frac{8}{18}$

48. Which of the following measurements is smallest?

- a.  $\frac{1}{2}$  inches
- b.  $\frac{2}{16}$  inches
- c.  $\frac{4}{12}$  inches
- d.  $\frac{12}{64}$  inches



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49. Which of the following measurements is largest?

- a.  $\frac{1}{2}$  inches
- b.  $\frac{2}{8}$  inches
- c.  $\frac{4}{16}$  inches
- d.  $\frac{28}{64}$  inches

50. Which of the following fraction pairs are equivalent fractions?

- a.  $\frac{1}{8}$  and  $\frac{1}{2}$
- b.  $\frac{1}{8}$  and  $\frac{2}{16}$
- c.  $\frac{1}{8}$  and  $\frac{3}{9}$
- d.  $\frac{1}{8}$  and  $\frac{8}{32}$

## Addition and Subtraction with Fractions

51.  $\frac{8}{18} + \frac{6}{18} =$  \_\_\_\_\_.

- a.  $\frac{7}{9}$
- b.  $\frac{14}{18}$
- c.  $\frac{14}{9}$
- d.  $\frac{48}{18}$

52.  $\frac{7}{16} + \frac{9}{16} =$  \_\_\_\_\_.

- a.  $\frac{1}{16}$
- b.  $\frac{16}{16}$
- c.  $\frac{8}{8}$
- d. 1

53.  $\frac{1}{2} + \frac{1}{4} =$  \_\_\_\_\_.

- a.  $\frac{1}{6}$
- b.  $\frac{2}{6}$
- c.  $\frac{3}{4}$
- d.  $\frac{7}{8}$

54.  $\frac{5}{18} + \frac{2}{12} =$  \_\_\_\_\_.

- a.  $\frac{1}{2}$
- b.  $\frac{4}{9}$
- c.  $\frac{8}{18}$
- d.  $\frac{7}{30}$

55.  $\frac{24}{64} + \frac{9}{32} + \frac{10}{64} =$  \_\_\_\_\_.

- a.  $\frac{3}{4}$
- b.  $\frac{4}{3}$
- c.  $\frac{13}{16}$
- d.  $\frac{44}{128}$

56.  $\frac{4}{6} - \frac{1}{6} =$  \_\_\_\_\_.

- a.  $\frac{1}{2}$
- b.  $\frac{1}{4}$
- c.  $\frac{3}{6}$
- d.  $\frac{5}{16}$

57.  $\frac{4}{6} - \frac{1}{12} =$  \_\_\_\_\_.

- a.  $\frac{3}{6}$
- b.  $\frac{4}{12}$
- c.  $\frac{7}{6}$
- d.  $\frac{7}{12}$

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58.  $2/3 - 2/3 =$  \_\_\_\_\_.

- a. 0
- b.  $0/3$
- c.  $2/6$
- d.  $4/6$

59.  $2/3 - 16/32 =$  \_\_\_\_\_.

- a.  $1/6$
- b.  $7/24$
- c.  $48/48$
- d.  $32/144$

60.  $1/2 - 1/4 - 4/64 =$  \_\_\_\_\_.

- a.  $1/128$
- b.  $1/8$
- c.  $3/16$
- d.  $14/64$

61. A  $3\ 1/2$ -foot pipe has a  $3\ 1/4$ -foot pipe fitted to it. How long is the extended pipe?

- a.  $3\ 3/4$  feet
- b.  $6\ 1/4$  feet
- c.  $6\ 3/4$  feet
- d.  $7\ 3/4$  feet

62. If Enrique saws  $8\ 1/4$  inches off a board that is  $20\ 1/4$  inches long, the length of the remaining board will be \_\_\_\_\_.

- a.  $8\ 1/4$  inches
- b. 11 inches
- c. 12 inches
- d.  $28\ 1/2$  inches

63. If Tayshaun saws  $8\ 1/16$  inches off a board that is  $20\ 1/4$  inches long, the length of the remaining board will be \_\_\_\_\_.

- a.  $8\ 1/4$  inches
- b.  $11\ 1/2$  inches
- c. 12 inches
- d.  $12\ 3/16$  inches

64. If  $8\ 1/2$  inches are sawed off a board that is  $20\ 1/4$  inches long, the length of the remaining board is \_\_\_\_\_.

- a.  $11\ 1/4$  inches
- b.  $11\ 1/2$  inches
- c.  $11\ 3/4$  inches
- d.  $12\ 3/16$  inches

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65. A  $4\frac{3}{4}$ -foot pipe has a  $3\frac{1}{4}$ -foot pipe fitted to it. How long is the new pipe?

- a.  $4\frac{3}{4}$  feet
- b. 5 feet
- c.  $7\frac{3}{4}$  feet
- d. 8 feet

66. A  $6\frac{3}{4}$ -foot pipe has a  $4\frac{1}{2}$ -foot pipe fitted to it. How long is the new pipe?

- a. 7 feet
- b.  $10\frac{1}{4}$  feet
- c.  $10\frac{3}{4}$  feet
- d.  $11\frac{1}{4}$  feet

67.  $100\frac{1}{10} + 67\frac{4}{5} =$  \_\_\_\_\_.

- a.  $167\frac{9}{10}$
- b.  $168\frac{1}{5}$
- c.  $168\frac{5}{15}$
- d.  $170\frac{3}{10}$

68.  $100\frac{1}{3} + 94\frac{1}{7} =$  \_\_\_\_\_.

- a.  $194\frac{1}{4}$
- b.  $194\frac{1}{11}$
- c.  $194\frac{10}{21}$
- d.  $195\frac{1}{7}$

69.  $34\frac{7}{12} - 11\frac{1}{9} - 8 =$  \_\_\_\_\_.

- a.  $15\frac{1}{3}$
- b.  $15\frac{17}{36}$
- c.  $15\frac{2}{3}$
- d.  $17\frac{1}{3}$

70. Because there are 12 inches in a foot, consider an inch as  $\frac{1}{12}$  of a foot. Subtract  $23'-6''$  from  $90'-1''$  using fractions.

- a.  $65\frac{1}{12}$  feet
- b.  $66\frac{7}{12}$  feet
- c.  $67\frac{1}{12}$  feet
- d.  $74\frac{1}{6}$  feet

## Multiplication and Division with Fractions

71.  $\frac{2}{3} \times \frac{2}{3} =$  \_\_\_\_\_.

- a.  $\frac{2}{6}$
- b.  $\frac{2}{9}$
- c.  $\frac{4}{6}$
- d.  $\frac{4}{9}$

72.  $1\frac{2}{3} \times \frac{1}{3} =$  \_\_\_\_\_.

- a.  $\frac{1}{3}$
- b.  $\frac{5}{9}$
- c.  $\frac{5}{15}$
- d. 2

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73. What is  $\frac{1}{8}$  of 9?

- a. 1
- b.  $\frac{8}{9}$
- c.  $1\frac{1}{8}$
- d.  $9\frac{1}{8}$

74.  $\frac{4}{8} \times \frac{1}{12} =$  \_\_\_\_\_.

- a.  $\frac{1}{24}$
- b.  $\frac{1}{12}$
- c.  $\frac{1}{6}$
- d.  $\frac{5}{20}$

75.  $\frac{20}{100} \times \frac{2}{4} =$  \_\_\_\_\_.

- a.  $\frac{1}{100}$
- b.  $\frac{1}{10}$
- c.  $\frac{20}{400}$
- d.  $\frac{22}{400}$

76. A  $\frac{2}{3}$ -foot board is cut to  $\frac{7}{16}$  of its original length. What is its new length?

- a.  $\frac{1}{3}$  feet
- b.  $\frac{7}{24}$  feet
- c.  $\frac{9}{19}$  feet
- d.  $\frac{14}{16}$  feet

77. A  $\frac{14}{35}$ -foot block of wood is cut to three quarters of its original length. What is its new length?

- a.  $\frac{1}{5}$  feet
- b.  $\frac{2}{10}$  feet
- c.  $\frac{3}{10}$  feet
- d.  $\frac{4}{7}$  feet

78.  $\frac{3}{9} \times \frac{24}{96} =$  \_\_\_\_\_.

- a.  $\frac{1}{12}$
- b.  $\frac{5}{16}$
- c.  $\frac{9}{16}$
- d.  $\frac{27}{105}$

79.  $\frac{3}{12} \times \frac{14}{70} =$  \_\_\_\_\_.

80.  $\frac{4}{64} \times \frac{1}{5} =$  \_\_\_\_\_.

81.  $\frac{1}{2} \div 5 =$  \_\_\_\_\_.

82.  $\frac{1}{4} \div 8 =$  \_\_\_\_\_.

83. How many  $2\frac{1}{2}$ -foot boards can be cut from a 10-foot plank?

- a. 4
- b.  $\frac{3}{4}$
- c.  $\frac{10}{2}$
- d.  $\frac{10}{6}$

# Entrance Exam Tune Up

84. A screw has 8 threads in  $\frac{1}{4}$ ". How many threads per inch are there?

- a.  $\frac{1}{32}$
- b.  $\frac{3}{4}$
- c.  $\frac{6}{4}$
- d. 32

85. How many  $\frac{1}{2}$ -lb bags of fasteners could you get from  $9\frac{1}{2}$  lbs. of fasteners?

- a. 7
- b.  $8\frac{1}{2}$
- c. 19
- d.  $5\frac{1}{2}$

86.  $\frac{2}{5} \div \frac{5}{2} =$  \_\_\_\_\_.

- a. 1
- b.  $\frac{1}{5}$
- c.  $\frac{4}{25}$
- d.  $\frac{6}{10}$

87.  $\frac{9}{22} \div \frac{1}{4} =$  \_\_\_\_\_.

- a.  $1\frac{7}{11}$
- b.  $2\frac{3}{11}$
- c.  $\frac{34}{88}$
- d.  $8\frac{8}{9}$

88.  $\frac{7}{8} \div \frac{19}{21} =$  \_\_\_\_\_.

- a.  $\frac{21}{19}$
- b.  $\frac{26}{29}$
- c.  $\frac{99}{102}$
- d.  $\frac{147}{152}$

89.  $2\frac{1}{3} \div \frac{15}{16} =$  \_\_\_\_\_.

- a.  $\frac{7}{16}$
- b.  $\frac{16}{45}$
- c.  $2\frac{22}{45}$
- d.  $7\frac{3}{16}$

90.  $\frac{31}{32} \div \frac{31}{32} =$  \_\_\_\_\_.

- a. 1
- b.  $\frac{31}{32}$
- c.  $\frac{32}{31}$
- d.  $\frac{992}{992}$

## Decimals

91. How would you show forty-five hundredths using decimals?

- a.  $\frac{45}{100}$
- b. 0.045
- c. 0.45
- d. 45

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92. How would you show sixty-one thousandths using decimals?

- a. 0.0061
- b. 0.061
- c. 0.61
- d. 61

93. In the number 0.1457, what numeral is in the tenths place?

- a. 0
- b. 1
- c. 4
- d. 5

94. In the number 0.6257, what numeral is in the hundredths place?

- a. 6
- b. 7
- c. 5
- d. 2

95. Which of the following answers places the decimals in order from the smallest value to the largest?

- a. 0.004, 0.042, 0.420, 0.402
- b. 0.004, 0.042, 0.402, 0.420
- c. 0.402, 0.420, 0.004, 0.042
- d. 0.420, 0.402, 0.042, 0.004

## Addition and Subtraction of Decimals

96.  $1.2 + 3 = \underline{\hspace{2cm}}$ .

- a. 1.5
- b. 1.8
- c. 4.0
- d. 4.2

97.  $0.4 + 0.5 = \underline{\hspace{2cm}}$ .

- a. 0.1
- b. 0.9
- c. 1
- d. 9

98.  $0.7 + 0.5 = \underline{\hspace{2cm}}$ .

- a. 1.2
- b. 2.2
- c. 3.0
- d. 7.5

99.  $0.35 + 0.3 = \underline{\hspace{2cm}}$ .

- a. 0.32
- b. 0.38
- c. 0.65
- d. 6.5

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100.  $5.59 + 3.33 = \underline{\hspace{2cm}}$ .

- a. 8.92
- b. 9.02
- c. 9.32
- d. 9.032

105.  $374.1 - 37.66 = \underline{\hspace{2cm}}$ .

- a. 0.25
- b. 33.64
- c. 37.44
- d. 336.44

101.  $1.2 - 0.1 = \underline{\hspace{2cm}}$ .

- a. 1.1
- b. 1.2
- c. 2.1
- d. 2.3

106.  $8.58 + 9.75 = \underline{\hspace{2cm}}$ .

- a. 12.28
- b. 18.42
- c. 18.33
- d. 83.655

102.  $6.6 - 0.6 = \underline{\hspace{2cm}}$ .

- a. 0.6
- b. 6.0
- c. 6.6
- d. 6.54

107.  $1.347 + 1.0003 = \underline{\hspace{2cm}}$ .

- a. 2.1
- b. 2.35
- c. 2.3473
- d. 2.647

103.  $3 - 1.95 = \underline{\hspace{2cm}}$ .

- a. 1.05
- b. 1.98
- c. 2.05
- d. 2.172

108. Yesterday, a job site contained 1.9 tons of wood. Since then, 1.4 tons were delivered to the same site. How many tons of wood does the site now have?

- a. 3.1 tons
- b. 3.3 tons
- c. 3.4 tons
- d. 3.6 tons

104.  $77.45 - 11.66 - 1.3333 = \underline{\hspace{2cm}}$ .

- a. 52.453
- b. 52.457
- c. 64.4567
- d. 66.34

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**109. A 20.4-foot pipe has another 9.3-foot pipe welded onto it. How long is the extended pipe?**

- a. 11.1 feet
- b. 29.7 feet
- c. 30.3 feet
- d. 180.7 feet

**110. Two steel plates 12.55 mm and 18.25 mm thick are welded together. What is the total thickness of the plates after welding?**

- a. 5.6 mm
- b. 30.75 mm
- c. 30.8 mm
- d. 32.5 mm

**111.  $11,458.88 - 7,775.38 =$  \_\_\_\_\_.**

- a. 368.5
- b. 3,683.26
- c. 3,683.5
- d. 19,234.26

**112.  $131,333 - 83,838.33 =$  \_\_\_\_\_.**

- a. 47,494.67
- b. 47,495
- c. 47,495.67
- d. 47,499

**113. A job site has 176.44 feet of cable. If 86.33 feet is used, how much remains?**

- a. 90.11
- b. 90.21
- c. 101.1
- d. 262.77

**114. A length of 7.01 feet is cut off of a 30.4-foot long beam. How long is the shortened beam?**

- a. 23.3 feet
- b. 23.39 feet
- c. 24.41 feet
- d. 37.41 feet

**115. A construction project has \$176,477.36 available in its budget. If a month's crane rental costs \$14,625.78, how much would remain in the budget after the rental?**

- a. \$61,851.58
- b. \$90,852.11
- c. \$161,852.36
- d. \$161,851.58



# Entrance Exam Tune Up

## Multiplication and Division with Decimals

116.  $1.3 \times 3.6 = \underline{\hspace{2cm}}$ .

- a. 4.58
- b. 4.68
- c. 4.9
- d. 46.8

117.  $6.1 \times 1.6 = \underline{\hspace{2cm}}$ .

- a. 3.90
- b. 7.7
- c. 9.76
- d. 61.16

118.  $4 \times 77.7 = \underline{\hspace{2cm}}$ .

- a. 73.7
- b. 270.8
- c. 282.8
- d. 310.8

119.  $9.4 \times 84.8 = \underline{\hspace{2cm}}$ .

- a. 77.91
- b. 79.71
- c. 779.12
- d. 797.12

120.  $88.4 \times 333.33 = \underline{\hspace{2cm}}$ .

- a. 2,799.972
- b. 2,6814.372
- c. 2,9201.172
- d. 29,466.372

121. Calculate the cost of 16 cubic yards of ready mixed concrete at \$79.15 per cubic yard.

- a. \$1,264.80
- b. \$1,266.40
- c. \$1,345.55
- d. \$1,626.40

122. If glass block weighs 30.2 pounds per square foot, what would 18.4 square feet of glass block weigh in pounds?

- a. 58.88
- b. 473.6
- c. 555.68
- d. 588.8

123. If insulation weighs 0.04 pounds per square foot, what would 34.9 square feet of insulation weigh in pounds?

- a. 0.1396
- b. 1.396
- c. 13.96
- d. 139.6

# Ohio Operating Engineers

124. A construction project has \$192,477 available in its budget. If a month's crane rental costs \$14,625.78, how much would remain in the budget after 3 month's rental?

- a. 14,859.96
- b. 17,785.12
- c. 148,599.66
- d. 177,851.22

125. If gypsum board weighs 2.2 pounds per square foot, what would 742.78 square feet of gypsum board weigh in pounds?

- a. 163.411
- b. 1,634.116
- c. 16,341.16
- d. 163,411.6

For the following ten questions, round your answers to the nearest hundredth.

126.  $24 \div 0.8 =$  \_\_\_\_\_.

- a. 1.3
- b. 3
- c. 3.2
- d. 30

127.  $2.4 \div 5 =$  \_\_\_\_\_.

- a. 0.48
- b. 2.9
- c. 4.8
- d. 29

128.  $24.1 \div 3.2 =$  \_\_\_\_\_.

- a. 7.14
- b. 7.53
- c. 7.5312
- d. 8.33

129.  $7.7 \div 1.1 =$  \_\_\_\_\_.

- a. 0.7
- b. 3.53
- c. 6.67
- d. 7

130.  $14.4 \div 3.17 =$  \_\_\_\_\_.

- a. 3.44
- b. 4.14
- c. 4.54
- d. 4.55

# Entrance Exam Tune Up

**131. If gypsum board weighs 2.2 pounds per square foot, and you need 310 pounds, how many square feet would that equal?**

- a. 15.5
- b. 140.9
- c. 140.91
- d. 155.45

**132. If three month's rental cost for a crane is \$46,592.25, what would be the cost for one month at the same rate?**

- a. \$1,537.50
- b. \$15,530.75
- c. \$18,636.90
- d. \$46,592.25

**133. How many 2.3-foot boards can be cut from a 41.4-foot plank?**

- a. 4
- b. 18
- c. 18.55
- d. 18.6

**134.  $60.35 \div 3.55 =$  \_\_\_\_\_.**

- a. 6.95
- b. 17
- c. 59
- d. 59.5

**135.  $1,662.5 \div 95 =$  \_\_\_\_\_.**

- a. 16.62
- b. 17
- c. 17.5
- d. 175

# Ohio Operating Engineers

## Work with Rulers

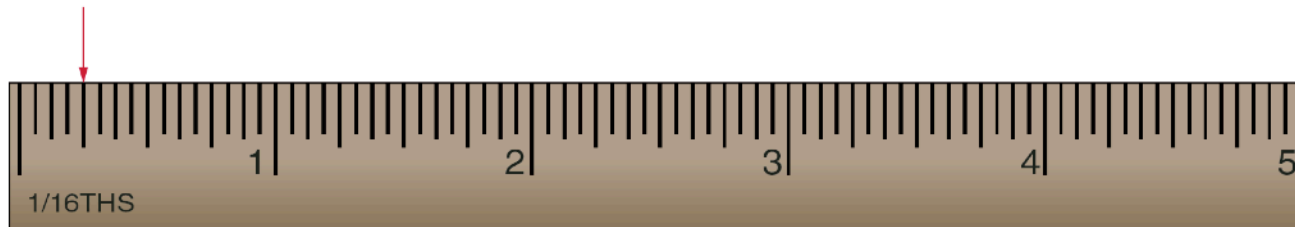


Figure 1

MATH-15\_WQ01.EPS

136. What is the Measurement indicated by the red line above?

- a.  $1/16''$
- b.  $1/8''$
- c.  $1/4''$
- d.  $1 \ 1/18''$

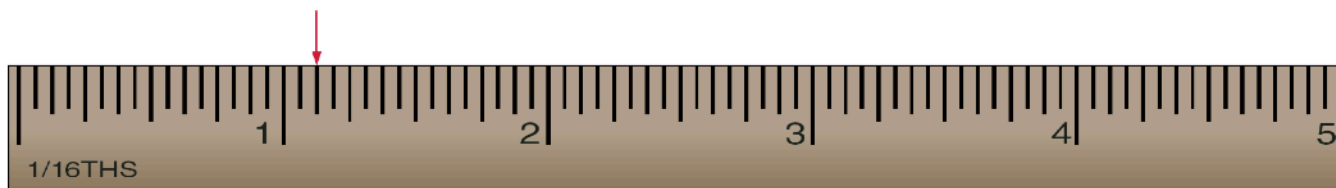


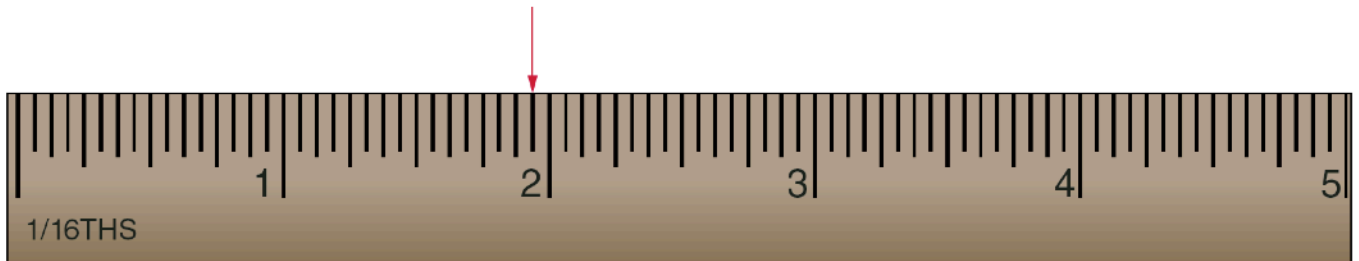
Figure 2

MATH-15\_WQ02.EPS

137. What is the measurement indicated by the red line above?

- a.  $7/8''$
- b.  $1 \ 1/8''$
- c.  $1 \ 1/4''$
- d.  $1 \ 1/2''$

# Entrance Exam Tune Up

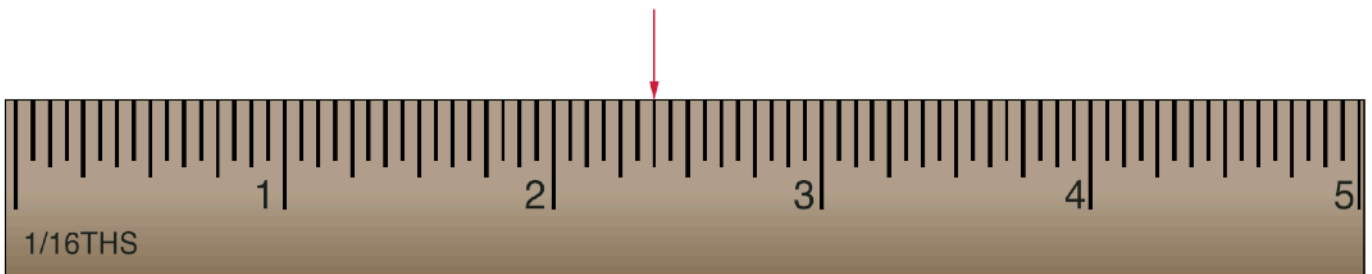


MATH-15\_WQ03.EPS

Figure 3

138. What is the measurement indicated by the red line above?

- a.  $1 \frac{1}{16}$ "
- b.  $1 \frac{7}{8}$ "
- c.  $1 \frac{15}{16}$ "
- d. 2"



MATH-15\_RQ04.EPS

Figure 4

139. What is the measurement indicated by the red line above?

- a.  $2 \frac{3}{8}$ "
- b.  $2 \frac{1}{2}$ "
- c.  $2 \frac{5}{8}$ "
- d.  $2 \frac{11}{16}$ "

# Ohio Operating Engineers

## Algebra, Geometry and Formulas

*Convert the following temperatures from Fahrenheit to Celsius, or vice versa.*

*Answers should be stated to the nearest tenth of a degree.*

### Relevant Formulas:

Converting Celsius to Fahrenheit:

$$^{\circ}\text{C} = 5/9 (^{\circ}\text{F} - 32^{\circ})$$

Converting Fahrenheit to Celsius:

$$^{\circ}\text{F} = (9/5 \div ^{\circ}\text{C}) + 32^{\circ}$$

**140.  $80^{\circ}\text{F} = \underline{\hspace{1cm}}^{\circ}\text{C}$**

- a. 26.67
- b. 48.0
- c. 80.66
- d. 176.0

**141.  $0^{\circ}\text{F} = \underline{\hspace{1cm}}^{\circ}\text{C}$**

- a. -32.00
- b. -17.78
- c. 25.66
- d. 57.6

**142.  $90.2^{\circ}\text{F} = \underline{\hspace{1cm}}^{\circ}\text{C}$**

- a. 32.33
- b. 44.44
- c. 58.2
- d. 104.76

**143.  $21^{\circ}\text{C} = \underline{\hspace{1cm}}^{\circ}\text{F}$**

- a. 37.8
- b. 44.44
- c. 69.8
- d. 101.8

**144.  $64.7^{\circ}\text{C} = \underline{\hspace{1cm}}^{\circ}\text{F}$**

- a. 18.7
- b. 96.7
- c. 116.46
- d. 148.46

# Entrance Exam Tune Up

## Area Problems

### Relevant Formulas:

Area of a rectangle = length  $\times$  width

Area of a square =  $s^2$  (any side)

Area of a circle =  $\pi r^2$   
 $\pi = 3.14$ ,  $r =$  radius

Radius of a circle =  $1/2$  diameter

Area of a triangle =  $1/2 \times$  base  $\times$  height

**145. Calculate the area of a rectangular scaffold platform that is 4 meters by 3 meters.**

- a. 12 m
- b. 12 m<sup>2</sup>
- c. 48 m<sup>2</sup>
- d. 48 m<sup>3</sup>

**146. Calculate the area of a rectangular scaffold platform that is 10 meters by 6.4 meters.**

- a. 8 m
- b. 16.4 m<sup>2</sup>
- c. 32.8 m<sup>2</sup>
- d. 64 m<sup>2</sup>

**147. Calculate the area of a rectangle that is 29.1 meters by 33.7 meters.**

- a. 980.67 m<sup>2</sup>
- b. 1,012 m<sup>3</sup>
- c. 1,048.7 m
- d. 1,048.77 m<sup>2</sup>

**148. The area of a 3-foot square piece of sheet metal is \_\_\_\_\_.**

- a. 3 sq ft
- b. 3.33 sq ft
- c. 9 sq ft
- d. 12 sq ft

**149. The area of a 9.4-foot square is \_\_\_\_\_.**

- a. 9.4 sq ft
- b. 37.2 sq ft
- c. 81 sq ft
- d. 88.36 sq ft

**150. The area of a circle with a 6-foot diameter is \_\_\_\_\_.**

- a. 24 sq ft
- b. 28.26 sq ft
- c. 53.86 sq ft
- d. 196 sq ft

# Ohio Operating Engineers

**151. The area of a circle with a 28.6-foot diameter is \_\_\_\_\_.**

- a. 642.1 sq ft
- b. 643.96 sq ft
- c. 753.86 sq ft
- d. 1,086 sq ft

**152. The area of a triangle with a base of 4 meters and a height of 5 meters is \_\_\_\_\_.**

- a. 10 sq m
- b. 14 sq m
- c. 22.4 sq m
- d. 36 sq m

**153. The area of a triangle-shaped piece of wood with a base of 12 inches and a height of 2.1 inches is \_\_\_\_\_.**

- a. 10 sq inches
- b. 12.6 sq inches
- c. 18.4 sq inches
- d. 26.1 sq inches

**154. The area of a triangle with a base of 1,033 miles and a height of 1,034 miles is \_\_\_\_\_.**

- a. 3,167 sq miles
- b. 14,000 sq miles
- c. 151,346 sq miles
- d. 534,061 sq miles



# Entrance Exam Tune Up

## Additional Math Information

### Terminology

Addition	Numerator
Area	Order of Operations
Base	Parallel
Center	Perimeter
Circle	Perpendicular
Cone	Pyramid
Cubed	Pythagorean Theorem
Cylinder	Radius
Denominator	Ratio
Diagonal	Rectangle
Diameter	Repeating Decimal
Division	Right Angle
Fraction	Square
Greatest Common Factor	Square Root
Hypotenuse	Squared
Improper Fraction	Subtraction
Inverse	Terminating Decimal
Least Common Denominator	Triangle
Mixed Number	Variable
Multiplication	Volume

# Ohio Operating Engineers

## Common Math Formulas

### Area

Square  $A=s^2$  (where s = any side of the square)

Rectangle  $A=lw$  (where l= length and w= width)

Triangle  $A=1/2bh$  (where b = base and h= height)

Circle  $A=\pi r^2$  (where  $\pi= 3.14$  and r= radius)

Sphere  $S=4\pi r^2$  (where  $\pi= 3.14$  and r= radius)

\*The surface area of a sphere is the “area” of the sphere.

### Perimeter

Square  $P=4s$

Rectangle  $P=2l+2w$

Triangle  $P= s1+s2+s3$

Circle  $C=\pi d$

\*The Circumference of a circle is the “perimeter” of the circle.

### Volume

Cube  $V= S^3$  (where S = any side)

Rectangular Container  $V= lwh$  (where l= length, w=width, and h=height)

Square Pyramid  $V=1/3(b)^2h$  (where b= base, h= height)

Cylinder  $V= \pi r^2h$  (where  $\pi= 3.14$  and r= radius, and h= height)

Cone  $V=1/3\pi r^2h$

Sphere  $V=4/3\pi r^3$

# Entrance Exam Tune Up

## Pythagorean Theorem

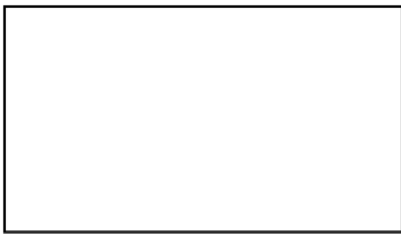
$$A^2 + B^2 = C^2$$

The Hypotenuse, which is the side opposite of the right angle, in a right triangle, must ALWAYS be "C" when using the Pythagorean Theorem.

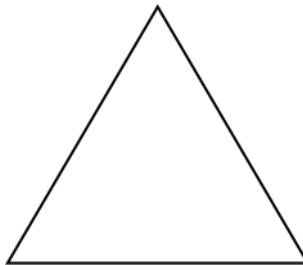
The Hypotenuse is ALWAYS the longest side in a right triangle.

## Common Shapes

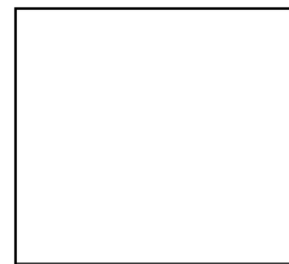
Rectangle



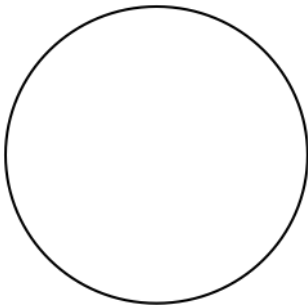
Triangle



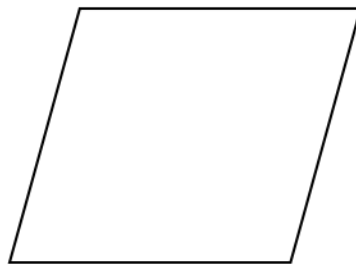
Square



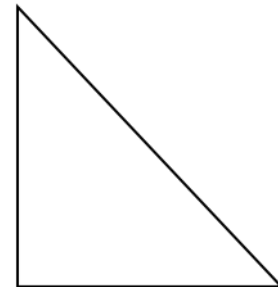
Circle



Parallelogram



Right Triangle



## NOTES:

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