

***Mathematics for the Trades, Cdn. 2e (Carman)***

**Chapter 2 Fractions**

1) Write as an improper fraction.

$$3\frac{1}{5}$$

Answer:  $\frac{16}{5}$

Type: SA

2) Write as an improper fraction.

$$5\frac{5}{8}$$

Answer:  $\frac{45}{8}$

Type: SA

3) Write as an improper fraction.

$$4\frac{4}{9}$$

Answer:  $\frac{40}{9}$

Type: SA

4) Write as an improper fraction.

$$6$$

Answer:  $\frac{6}{1}$

Type: SA

5) Write as an improper fraction.

$$2\frac{5}{12}$$

Answer:  $\frac{29}{12}$

Type: SA

6) Reduce to lowest terms.

$$\frac{14}{20}$$

Answer:  $\frac{7}{10}$

Type: SA

7) Reduce to lowest terms.

$$\frac{39}{13}$$

Answer: 3

Type: SA

8) Reduce to lowest terms.

$$5\frac{20}{32}$$

Answer:  $5\frac{5}{8}$

Type: SA

9) Reduce to lowest terms.

$$\frac{45}{27}$$

Answer:  $1\frac{2}{3}$  or  $\frac{5}{3}$

Type: SA

10) Reduce to lowest terms.

$$\frac{20}{45}$$

Answer:  $\frac{4}{9}$

Type: SA

11) Write as a mixed number reduced to lowest terms.

$$\frac{4}{3}$$

Answer:  $1\frac{1}{3}$

Type: SA

12) Write as a mixed number reduced to lowest terms.

$$\frac{38}{8}$$

Answer:  $4\frac{3}{4}$

Type: SA

13) Write as a mixed number reduced to lowest terms.

$$\frac{23}{2}$$

Answer:  $11\frac{1}{2}$

Type: SA

14) Write as a mixed number reduced to lowest terms.

$$\frac{98}{16}$$

Answer:  $6\frac{1}{8}$

Type: SA

15) Write as a mixed number reduced to lowest terms.

$$\frac{84}{13}$$

Answer:  $6\frac{6}{13}$

Type: SA

16)  $\frac{60}{45} = \frac{?}{15}$

Answer: 20

Explanation:  $\frac{60 \div 3}{45 \div 3} = \frac{20}{15}$

Type: SA

17)  $\frac{9}{3} = \frac{?}{12}$

Answer: 36

Explanation:  $\frac{9 \times 4}{3 \times 4} = \frac{36}{12}$

Type: SA

$$18) 1\frac{10}{12} = \frac{?}{6}$$

Answer: 11

$$\text{Explanation: } \frac{22 \div 2}{12 \div 2} = \frac{11}{6}$$

Type: SA

$$19) 5 = \frac{?}{4}$$

Answer: 20

$$\text{Explanation: } \frac{5 \times 4}{1 \times 4} = \frac{20}{4}$$

Type: SA

$$20) 2\frac{6}{8} = \frac{?}{24}$$

Answer: 66

Type: SA

21) Choose the larger number.

$$\frac{3}{4} \text{ or } \frac{3}{8}$$

$$\text{Answer: } \frac{3}{4}$$

Type: SA

22) Choose the larger number.

$$2\frac{4}{5} \text{ or } \frac{30}{10}$$

$$\text{Answer: } \frac{30}{10}$$

Type: SA

23) Choose the larger number.

$$\frac{5}{16} \text{ or } \frac{24}{80}$$

$$\text{Answer: } \frac{5}{16}$$

Type: SA

24) Choose the larger number.

$$\frac{3}{8} \text{ or } \frac{1}{4}$$

Answer:  $\frac{3}{8}$

Type: SA

25) Choose the larger number.

$$1\frac{13}{6} \text{ or } 2\frac{1}{2}$$

Answer:  $1\frac{13}{6}$

Type: SA

26) Write the product in lowest terms.

$$\frac{7}{8} \times \frac{1}{3} =$$

Answer:  $\frac{7}{24}$

Type: SA

27) Write the product in lowest terms.

$$5 \times \frac{3}{25} =$$

Answer:  $\frac{3}{5}$

Type: SA

28) Write the product in lowest terms.

$$\frac{2}{9} \times \frac{6}{16} =$$

Answer:  $\frac{1}{12}$

Type: SA

29) Write the product in lowest terms.

$$\frac{3}{7} \times \frac{5}{8} =$$

Answer:  $\frac{15}{56}$

Type: SA

30) Write the product in lowest terms.

$$\frac{4}{5} \times 6 =$$

Answer:  $4\frac{4}{5}$

Type: SA

31) Write the product in lowest terms.

$$5\frac{1}{2} \times \frac{2}{3} =$$

Answer:  $3\frac{2}{3}$

Type: SA

32) Write the product in lowest terms.

$$6\frac{1}{8} \times 9\frac{1}{7} =$$

Answer: 56

Type: SA

33) Write the product in lowest terms.

$$8\frac{1}{3} \times 3 =$$

Answer: 25

Type: SA

34) Write the product in lowest terms.

$$3\frac{3}{4} \times \frac{2}{5} =$$

Answer:  $1\frac{1}{2}$

Type: SA

35) Write the product in lowest terms.

$$1\frac{5}{9} \times \frac{2}{3} \times \frac{3}{7} =$$

Answer:  $\frac{4}{9}$

Type: SA

36) Write the product in lowest terms.

$$\frac{4}{7} \times 3 \times \frac{7}{4} =$$

Answer: 3

Type: SA

37) Write the product in lowest terms.

$$\frac{5}{18} \times 5\frac{2}{5} =$$

Answer:  $1\frac{1}{2}$

Type: SA

38) Write the product in lowest terms.

$$7 \times 3\frac{1}{2} =$$

Answer:  $24\frac{1}{2}$

Type: SA

39) Write the product in lowest terms.

$$\frac{49}{3} \times \frac{4}{14} =$$

Answer:  $4\frac{2}{3}$

Type: SA

40) Write the product in lowest terms.

$$\frac{1}{2} \times \frac{1}{2} \times \frac{1}{2} =$$

Answer:  $\frac{1}{8}$

Type: SA

41) A carpenter has two boards. The first is  $13\frac{1}{2}$  ft long. The second is  $\frac{1}{3}$  the length of the first.

How long is the second board?

Answer:  $4\frac{1}{2}$  ft

Explanation:  $13\frac{1}{2} \times \frac{1}{3} = \frac{27}{2} \times \frac{1}{3} = \frac{9}{2} = 4\frac{1}{2}$

Type: SA

42) A car averages 30 miles per gallon of gas. If its gas tank holds  $12\frac{1}{2}$  gallons of gas, how far will the car travel on a full tank of gas?

Answer: 375 miles

Explanation:  $30 \times 12\frac{1}{2} = \frac{30}{1} \times \frac{25}{2} = 375$

Type: SA

43) An electrician uses 16 lengths of wire that are each  $5\frac{5}{8}$  in. long. What is the total length of wire used?

Answer: 90 in.

Explanation:  $16 \times 5\frac{5}{8} = \frac{16}{1} \times \frac{45}{8} = 90$

Type: SA

44) A painter used  $5\frac{1}{3}$  cans of paint. Each can holds  $4\frac{1}{4}$  litres. How much paint did he use?

Answer:  $22\frac{2}{3}$  litres of paint

Explanation:  $5\frac{1}{3} \times 4\frac{1}{4} = \frac{16}{3} \times \frac{17}{4} = \frac{272}{12} = 22\frac{2}{3}$  litres

Type: SA

45) A 200-litre drum of oil leaked  $\frac{3}{5}$  of its contents. How many litres remained in the drum?

Answer: 80 litres

Explanation:  $200 \times \frac{3}{5} = 120$  litres leaked

$200 - 120 = 80$  litres remained

Type: SA

46) Find the reciprocal of the following fraction:

$$\frac{7}{9}$$

Answer:  $\frac{9}{7}$  or  $1\frac{2}{7}$

Type: SA



47) Find the reciprocal of the following fraction:

$$\frac{11}{23}$$

Answer:  $\frac{23}{11}$  or  $2\frac{1}{11}$

Type: SA

48) Find the reciprocal of the following fraction:

$$\frac{24}{17}$$

Answer:  $\frac{17}{24}$

Type: SA

49) Find the reciprocal of the following fraction:

$$2\frac{5}{8}$$

Answer:  $\frac{8}{21}$

Type: SA

50) Find the reciprocal of the following fraction:

$$12\frac{9}{13}$$

Answer:  $\frac{13}{165}$

Type: SA

51) Write the answer in lowest terms.

$$\frac{1}{2} \div \frac{1}{3} =$$

Answer:  $1\frac{1}{2}$

Type: SA

52) Write the answer in lowest terms.

$$\frac{3}{5} \div 7 =$$

Answer:  $\frac{3}{35}$

Type: SA

53) Write the answer in lowest terms.

$$\frac{1}{4} \div 2\frac{2}{3} =$$

$$\text{Answer: } \frac{3}{32}$$

Type: SA

54) Write the answer in lowest terms.

$$2\frac{1}{10} \div \frac{8}{5} =$$

$$\text{Answer: } 1\frac{5}{16}$$

Type: SA

55) Write the answer in lowest terms.

$$\frac{1}{12} \div \frac{1}{18} =$$

$$\text{Answer: } 1\frac{1}{2}$$

Type: SA

56) Write the answer in lowest terms.

$$1\frac{1}{6} \div 1\frac{2}{3} =$$

$$\text{Answer: } \frac{7}{10}$$

Type: SA

57) Write the answer in lowest terms.

$$4 \div \frac{8}{13} =$$

$$\text{Answer: } 6\frac{1}{2}$$

Type: SA

58) Write the answer in lowest terms.

$$10\frac{1}{8} \div \frac{1}{4} =$$

$$\text{Answer: } 40\frac{1}{2}$$

Type: SA

59) Write the answer in lowest terms.

$$\frac{5}{16} \div \frac{3}{4} =$$

$$\text{Answer: } \frac{5}{12}$$

Type: SA

60) Write the answer in lowest terms.

$$6 \div \frac{1}{2} =$$

$$\text{Answer: } 12$$

Type: SA

61) Write the answer in lowest terms.

$$\frac{7}{12} \div 2\frac{1}{4} =$$

$$\text{Answer: } \frac{7}{27}$$

Type: SA

62) Write the answer in lowest terms.

$$\frac{7}{8} \div 14 =$$

$$\text{Answer: } \frac{1}{16}$$

Type: SA

63) Write the answer in lowest terms.

$$56 \div 4\frac{3}{8} =$$

$$\text{Answer: } 12\frac{4}{5}$$

Type: SA

64) Write the answer in lowest terms.

$$\frac{3}{8} \div \frac{3}{8} =$$

Answer: 1

Type: SA

65) Write the answer in lowest terms.

$$\frac{13}{16} \div \frac{5}{8} =$$

Answer:  $1\frac{3}{10}$

Type: SA

66) How many metres are represented by a  $12\frac{1}{2}$  cm line if it is drawn to a scale of 5 mm = 1 m?

(Hint: 1 cm = 10 mm)

Answer: 25 metres

Explanation:  $12\frac{1}{2} \div \frac{1}{2} = \frac{25}{2} \times \frac{2}{1} = 25$  metres

Type: SA

67) How many lengths of pipe  $1\frac{1}{4}$  m long can be cut from a pipe that is  $36\frac{1}{2}$  m long?

Answer: 29 lengths of pipe

Explanation:  $36\frac{1}{2} \div 1\frac{1}{4} = \frac{73}{2} \div \frac{5}{4} = \frac{73}{2} \times \frac{4}{5} = \frac{146}{5} = 29\frac{1}{5}$  or 29 pieces of pipe

Type: SA

68) On a house plan, the floor area of a room measures  $4\frac{1}{4}$  in. by  $3\frac{3}{8}$  in. If  $\frac{1}{4}$  in. is equal to 1 ft on the drawing, what are the actual dimensions of the room?

Answer: 17 ft by  $13\frac{1}{2}$  ft

Explanation:  $4\frac{1}{4} \div \frac{1}{4} = \frac{17}{4} \times \frac{4}{1} = 17$   $3\frac{3}{8} \div \frac{1}{4} = \frac{27}{8} \times \frac{4}{1} = \frac{27}{2} = 13\frac{1}{2}$

Type: SA

69) How many pieces of  $4\frac{1}{2}$  in. plywood are needed to make a fence that is 36 ft long? (Hint: 12 in. = 1 ft)

Answer: 96 pieces

Explanation:  $36 \text{ ft} \times 12 \frac{\text{in.}}{\text{ft}} \div 4\frac{1}{2} \text{ in.} = 432 \text{ in.} \div \frac{9}{2} \text{ in.} = 432 \text{ in.} \times \frac{2}{9 \text{ in.}} = 96$

Type: SA

70) How many  $10\frac{1}{4}$  in. risers are in a flight of stairs  $8\frac{13}{24}$  ft high?

Answer: 10 risers

Explanation:  $\frac{18\frac{13}{24} \times 12}{10\frac{1}{4}} = 10$  risers

Type: SA

71) An oil tank holds 280 gallons of oil. On March 1st, the gauge showed it to be  $\frac{7}{8}$  full. At the end of the month, the tank was  $\frac{1}{4}$  full. How much oil was used in March?

Answer: 175 gallons

Explanation:

March 1:  $280 \text{ gal} \times \frac{7}{8} = 245 \text{ gal}$

March 31:  $280 \text{ gal} \times \frac{1}{4} = 70 \text{ gal}$        $245 - 70 = 175$

Type: SA

72) Find the lowest common denominator (LCD) for the following fractions. Answer with only the value of the LCD. For example, the answer to the LCD of  $\frac{1}{2}$  and  $\frac{2}{3}$  would be 6.

$$\frac{1}{5} \quad \frac{1}{7}$$

Answer: 35

Type: SA

73) Find the lowest common denominator (LCD) for the following fractions. Answer with only the value of the LCD. For example, the answer to the LCD of  $\frac{1}{2}$  and  $\frac{2}{3}$  would be 6.

$$\frac{3}{8} \quad \frac{5}{6}$$

Answer: 24

Type: SA

74) Find the lowest common denominator (LCD) for the following fractions. Answer with only the value of the LCD. For example, the answer to the LCD of  $\frac{1}{2}$  and  $\frac{2}{3}$  would be 6.

$$\frac{3}{7} \quad \frac{9}{14}$$

Answer: 14

Type: SA

75) Find the lowest common denominator (LCD) for the following fractions. Answer with only the value of the LCD. For example, the answer to the LCD of  $\frac{1}{2}$  and  $\frac{2}{3}$  would be 6.

$$2\frac{1}{5} \quad 6\frac{1}{8}$$

Answer: 40

Type: SA

76) Find the lowest common denominator (LCD) for the following fractions. Answer with only the value of the LCD. For example, the answer to the LCD of  $\frac{1}{2}$  and  $\frac{2}{3}$  would be 6.

$$\frac{2}{3} \quad \frac{5}{6} \quad \frac{1}{4}$$

Answer: 12

Type: SA

77) Find the lowest common denominator (LCD) for the following fractions. Answer with only the value of the LCD. For example, the answer to the LCD of  $\frac{1}{2}$  and  $\frac{2}{3}$  would be 6.

$$\frac{2}{11} \quad \frac{3}{17} \quad \frac{9}{14}$$

Answer: 2618

Type: SA

78) Find the lowest common denominator (LCD) for the following fractions. Answer with only the value of the LCD. For example, the answer to the LCD of  $\frac{1}{2}$  and  $\frac{2}{3}$  would be 6.

$$4\frac{7}{8} \quad \frac{8}{15} \quad 6\frac{7}{12}$$

Answer: 120

Type: SA

79) Write the answer in lowest terms.

$$\frac{1}{8} + \frac{5}{8} =$$

Answer:  $\frac{3}{4}$

Type: SA

80) Write the answer in lowest terms.

$$\frac{5}{14} + \frac{9}{14} + \frac{3}{14} =$$

Answer:  $1\frac{3}{14}$

Type: SA

81) Write the answer in lowest terms.

$$5\frac{7}{12} + 39\frac{1}{2} =$$

Answer:  $45\frac{1}{12}$

Type: SA

82) Write the answer in lowest terms.

$$7\frac{5}{6} + 5\frac{3}{8} + 4\frac{1}{4} =$$

Answer:  $17\frac{11}{24}$

Type: SA

83) Write the answer in lowest terms.

$$1\frac{1}{6} + 6\frac{1}{2} + 3\frac{1}{3} =$$

Answer: 11

Type: SA

84) Write the answer in lowest terms.

$$\frac{1}{2} + \frac{1}{4} + \frac{2}{3} + \frac{1}{6} =$$

Answer:  $1\frac{7}{12}$

Type: SA

85) Write the answer in lowest terms.

$$10\frac{1}{2} + 2\frac{7}{15} + 7\frac{2}{3} =$$

Answer:  $20\frac{1}{3}$

Type: SA

86) Write the answer in lowest terms.

$$4\frac{1}{3} + 4\frac{5}{6} + 2\frac{1}{2} =$$

Answer:  $11\frac{2}{3}$

Type: SA

87) Write the answer in lowest terms.

$$6\frac{7}{12} + 2\frac{2}{3} =$$

Answer:  $9\frac{1}{4}$

Type: SA

88) Write the answer in lowest terms.

$$4\frac{1}{4} + 6\frac{5}{16} =$$

Answer:  $10\frac{9}{16}$

Type: SA

89) How long a bolt is needed to go through tubing  $\frac{5}{8}$  in. long, a washer  $\frac{1}{16}$  in. thick, and a nut  $\frac{3}{16}$  in. thick? Reduce the answer to lowest terms.

Answer:  $\frac{7}{8}$  in.

Explanation:  $\frac{5}{8} + \frac{1}{16} + \frac{3}{16} = \frac{10}{16} + \frac{1}{16} + \frac{3}{16} = \frac{14}{16} = \frac{7}{8}$

Type: SA



90) A carpenter needs the following lengths of  $2 \times 4$  in. redwood:  $5\frac{1}{2}$  ft,  $7\frac{3}{4}$  ft,  $9\frac{5}{8}$  ft, and 10 ft.

How many feet of redwood should he order?

Answer:  $32\frac{7}{8}$  ft

Explanation:  $5\frac{1}{2} + 7\frac{3}{4} + 9\frac{5}{8} + 10 = 31 + \frac{15}{8} = 31 + 1\frac{7}{8} = 32\frac{7}{8}$

Type: SA

91) Write the answer in lowest terms.

$$\frac{7}{8} - \frac{1}{2} =$$

Answer:  $\frac{3}{8}$

Type: SA

92) Write the answer in lowest terms.

$$19\frac{1}{4} - 8\frac{2}{3} =$$

Answer:  $10\frac{7}{12}$

Type: SA

93) Write the answer in lowest terms.

$$10\frac{1}{2} - 6\frac{3}{4} =$$

Answer:  $3\frac{3}{4}$

Type: SA

94) Write the answer in lowest terms.

$$23 - 12\frac{3}{8} =$$

Answer:  $10\frac{5}{8}$

Type: SA

95) Write the answer in lowest terms.

$$6\frac{1}{6} - 4\frac{2}{6} =$$

$$\text{Answer: } 1\frac{5}{6}$$

Type: SA

96) Write the answer in lowest terms.

$$3\frac{1}{3} - 2\frac{1}{7} =$$

$$\text{Answer: } 1\frac{4}{21}$$

Type: SA

97) Write the answer in lowest terms.

$$2\frac{1}{3} - 1\frac{1}{2} =$$

$$\text{Answer: } \frac{5}{6}$$

Type: SA

98) Write the answer in lowest terms.

$$3\frac{1}{5} - 2\frac{5}{6} =$$

$$\text{Answer: } \frac{11}{30}$$

Type: SA

99) Write the answer in lowest terms.

$$6\frac{1}{2} - 2\frac{3}{5} =$$

$$\text{Answer: } 3\frac{9}{10}$$

Type: SA

100) Write the answer in lowest terms.

$$5\frac{2}{3} - 3\frac{1}{4} =$$

$$\text{Answer: } 2\frac{5}{12}$$

Type: SA

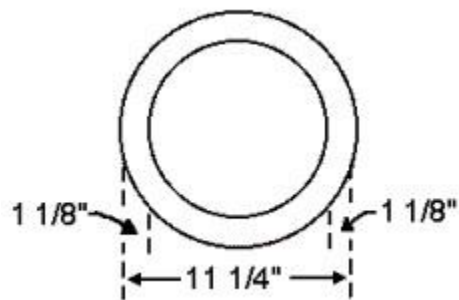
101) A bureau that is 64 in. high has a  $3\frac{1}{2}$  in. base and a  $2\frac{1}{4}$  in. top. How much room is left for drawers?

Answer:  $58\frac{1}{4}$  in.

Explanation:  $64 - (3\frac{1}{2} + 2\frac{1}{4}) = 64 - 5\frac{3}{4} = 63\frac{4}{4} - 5\frac{3}{4} = 58\frac{1}{4}$

Type: SA

102) A cement pipe has an outside diameter of  $11\frac{1}{4}$  in. and a wall thickness of  $1\frac{1}{8}$  in. What is the inside diameter of the pipe?



Answer: 9 in.

Explanation:  $11\frac{1}{4} - (1\frac{1}{8} + 1\frac{1}{8}) = 11\frac{1}{4} - 2\frac{2}{8} = 11\frac{1}{4} - 2\frac{1}{4} = 9$

Type: SA