Solutions for Rumack's Preparation Workbook: 1.7

1. To find the equivalent answer, convert the decimal number into a mixed number and simplify. $3.25 = 3\frac{25}{100} = 3\frac{25\div25}{100\div25} = 3\frac{1}{4}$. The answer is (C).

2. To find the best equivalent fraction, compare each answer choice with the given fraction and then choose the simplest option. To do this, each answer choice must have the same denominator as the given fraction. Although (A) is also equivalent, (E) is the in the simplest form.

3. To find N, convert the fraction(s) so that they have the same denominator. Then, the numerators will also be the same. $\frac{3}{5} = \frac{N}{10}, \frac{3\times2}{5\times2} = \frac{N}{10}, \frac{6}{10} = \frac{N}{10}, 6 = N$. The answer is (E).

4. To compare the percentage to decimal answer choices, convert the percentage to a decimal. $7\frac{1}{4}\% = 7.25\% = 0.0725$. The answer is (E), since 0.0725 is greater than 0.0714.

5. To find the sum, convert all measurements to the same unit and add. $1\ m = (1 \times 100)cm = 100\ cm$. 4 mm = (4 ÷ 10) *cm* = 0.4 *cm*. 100 *cm* + 2 *cm* + 0.4 *cm* = (A) 102. 4 *cm*.

6. To find N, set up an equation and then rearrange it so that N is isolated. $N + 3 = 27$, $N = 27 - 3$, $N = 24$. The answer is (C).

7. To find an equivalent percentage, convert to a percentage and then convert this percentage into a mixed number percentage. To convert from decimal to percentage, multiply by 100 or move the decimal two spaces to the right. $102.5\% = 102\frac{5}{10}\% = 102\frac{1}{2}\%$. The answer is (A).

8. To find the equal fraction, convert the fractions so that the given fraction has the same denominator as each answer choice. $\frac{5}{6} = \frac{5\times3}{6\times3} = \frac{15}{18}$. The answer is (B).

9. To compare the given fraction with each answer choice, convert all fractions so that they have the same denominator. Because the given denominators are 2, 3, 4, and 5, use 60 as a denominator for all fractions. $\frac{3}{4} = \frac{3\times15}{4\times15} = \frac{45}{60}$. The answer is (D), since $\frac{45}{60}$ is greater than the first fraction and less than the second: $\frac{3}{5}, \frac{4}{5} = \frac{3\times12}{5\times12}, \frac{4\times12}{5\times12} = \frac{36}{60}, \frac{48}{60}$.

10. To compare the given percentage with fractions, convert each fraction to a percentage. The answer is (A), since 25.5% is greater than $\frac{1}{4} = 1 \div 4 = 0.25 = 25\%$.

11. To find the sum, convert all measurements to the same unit and add. Since most answer choices use cm, it is likely easier to work with cm. $2.5\ cm + 5.3\ cm + 38\ mm = 2.5\ cm + 5.3\ cm + (38 \div 10)\ cm = 2.5\ cm + 5.3\ cm + 3.8\ cm = 11.6\ cm$. The answer is (A).

12. To find the measurement in inches, multiply by 12. $\frac{1}{3}$ ft= $\frac{1}{3} \times 12\ inches = \frac{12}{3} inches = \frac{4}{1} inches = 4\ inches$. The answer is (E) None of the above.

13. To find the equivalent answer, convert to a percent. $\frac{7}{20} = 7 \div 20 = 0.35 = 35\%$. The answer is (B).

14. To find the sum, add. Convert units if necessary.
$1\ foot\ 2\ inches + 2\ feet\ 4\ inches + 5\ feet\ 9\ inches = 8\ feet\ 15\ inches = 8\ feet + (12 + 3) inches = 9\ feet + 3\ inches$. The answer is (D).

15. To find the distance, calculate how far the driver would travel after one hour and multiply by 5. 360 km/3 hours = 360 ÷ 3 = 120 km/ hour. 120 × 5 = 600 km.

16. To convert km to cm, first convert to metres and then to cm. $1.4\ km = (1.4 \times 1000)\ m = 1400\ m = (1400 \times 100)\ cm = 140{,}000\ cm$. The answer is (E).

17. To find the closest answer choice, divide and then find the smallest difference between this decimal and an answer choice. $\frac{2}{7} = 2 \div 7 \cong 0.286$. The answer is (C).

18. To convert yards to inches, first convert to feet and then convert to inches. $4\frac{1}{3}$ yards= $(4\frac{1}{3} \times 3)$ feet= $13\ feet = (13 \times 12)\ inches = 156\ inches$. The answer is (C).

19. To find the perimeter, convert all measurements to the same unit and add up all four sides. Since most answer choices area in metres, it is likely the best unit to use. $Perimeter = length + length + width + width = 2.4\ m + 2.4\ m + 0.75\ m + 0.75\ m = 6.30\ m$. The answer is (B).

20. To find the sum, add the measurements and convert to feet and inches. $7\ inches + 9\ inches + 11\ inches = 27\ inches = 24\ inches + 3\ inches = 2\ feet\ 3\ inches$. Since 27 is not a multiple of 12, we take the closest smaller multiple of 12 and convert this to feet. Any remaining inches stay as inches. The answer is (B).

21. To find the frequency, set up an equation with fractions and then solve for the unknown value. $\frac{1}{3} = \frac{N}{33}, \frac{1 \times 11}{3 \times 11} = \frac{N}{33}, \frac{11}{33} = \frac{N}{33},\ 11 = N$. The answer is (C).

22. To determine the frequency, determine all known values and then solve for the unknown value. Since the frequency is given in minutes, we need to know how many minutes there are between 11 a.m. and 2 p.m. $3\ hours = (3 \times 60)\ minutes = 180\ minutes$. Let N represent the number of times the bus will stop between 11 a.m. and 2 p.m. $\frac{1}{12} = \frac{N}{180}, \frac{1 \times 15}{12 \times 15} = \frac{N}{180}, \frac{15}{180} = \frac{N}{180},\ 15 = N$. The answer is (E).

23. To convert inches to yards, first convert to feet and then convert feet to yards. $96\ inches = (96 \div 12)\ feet = 8\ feet = (8 \div 3)\ yards = \frac{8}{3}\ yards = 2\frac{2}{3}\ yards$. The answer is (C).

24. To find the perimeter, convert all measurements to the same unit and add up all three sides. Since most answer choices are in cm, it is likely the best unit to use. $Perimeter = 2.5\ cm + 2.4\ cm + 7\ mm = 2.5\ cm + 2.4\ cm + (7 \div 10)\ cm = 2.5\ cm + 2.4\ cm + 0.7\ cm = 5.6\ cm$. Since this is not one of the answer choices, convert to another unit that appears in the answer choices. $5.6\ cm = (5.6 \times 10)\ mm = 56\ mm$. The answer is (A).

25. To find the answer in inches, convert feet to inches and then multiply by the percentage. $15\ feet = (15 \times 12)\ inches = 180\ inches$. 75% of 180 inches$= 75\% \times 180\ inches = 0.75 \times 180\ inches = 135.00\ inches$. The answer is (C).