

Part I - Solve each problem. Show all work to receive full credit. Supply explanations where necessary. Each problem is worth 2 points. **CALCULATORS ARE ALLOWED ON THIS PORTION OF THE TEST.**

1. Find the decimal form of $\frac{27}{97}$. Round to the nearest ten-thousandth.

$$\frac{27}{97} = 0.2783505155... \approx \boxed{0.2784}$$

2. Compute: $(5 - 0.04)^2 \div 4 + 8.7 \times 0.4$

$$= \boxed{9.6304}$$

3. Combine like terms: $1.9 + 13.7y + 7.3x - 11.25y + 6.39x - 7.3$

$$(13.7 - 11.25)y + (7.3 + 6.39)x + (1.9 - 7.3)$$

$$\boxed{2.45y + 13.69x - 5.4}$$

4. Solve for x : $2.3(x - 5.1) = 5.5x + 9.134$

$$\begin{array}{r} 2.3x - 11.73 = 5.5x + 9.134 \\ -2.3x \qquad \qquad -2.3x \\ \hline -11.73 = 3.2x + 9.134 \\ -9.134 \qquad \qquad -9.134 \\ \hline -20.864 = 3.2x \end{array}$$

$$\frac{-20.864}{3.2} = \frac{3.2x}{3.2}$$

$$\boxed{-6.52 = x}$$

5. Find the area of a triangle whose height is 9.87 cm and whose base measures 5.62 cm.
(This problem is about a triangle, not a rectangle!)

$$\frac{1}{2} (9.87 \text{ cm}) (5.62 \text{ cm}) =$$

$$\boxed{27.7347 \text{ cm}^2}$$

Part II - Solve each problem. Show all work to receive full credit. Supply explanations where necessary. **CALCULATORS ARE NOT ALLOWED ON THIS PORTION OF THE TEST.** For problems requiring work, no credit will be awarded if the work is not shown.

1. (2 points) Write each number in decimal notation.

(a) $-7\frac{8}{10} = -7.8$

(b) $13\frac{173}{100000} = 13.00173$

2. (2 points) Write each number as a fraction in mixed-number form. Do not reduce to lowest terms.

(a) $8.92 = 8\frac{92}{100}$

(b) $36.00075 = 36\frac{75}{100,000}$

3. (2 points) Round each number to the indicated place.

(a) 378.95632 to the nearest hundredth

≈ 378.96

(b) 0.045215 to the nearest tenth

≈ 0

4. (2 points) Arrange the following numbers in order from least to greatest.

~~0.878~~, ~~0.787~~, 1.008, 1.08, ~~0.087~~

0.087, 0.787, 0.878, 1.008, 1.08

5. (2 points) Compute each of the following.

(a) $19.873 + 4.96$

$= 24.833$

$$\begin{array}{r} 19.873 \\ + 4.96 \\ \hline 24.833 \end{array}$$

(b) $-7.332 + 5.6948$

$= -1.6372$

$$\begin{array}{r} 7.3320 \\ - 5.6948 \\ \hline 1.6372 \end{array}$$

6. (2 points) Write each fraction in decimal form. Find exact values. Do not round.

(a) $\frac{7}{25} = 0.28$

$$\begin{array}{r} 0.28 \\ 25 \overline{) 7.0000} \\ \underline{50} \\ 200 \\ \underline{200} \\ 0 \end{array}$$

(b) $\frac{11}{8} = 1.375$

$$\begin{array}{r} 1.375 \\ 8 \overline{) 11.0000} \\ \underline{8} \\ 30 \\ \underline{24} \\ 60 \\ \underline{56} \\ 40 \\ \underline{40} \\ 0 \end{array}$$

7. (4 points) Carry out the indicated operation.

(a) $1.0452 \times 100 = 104.52$

(b) $67.95 \div 0.0001 = 679,500$

(c) $7.3511 \div 1000 = 0.0073511$

(d) $0.00952 \times 0.1 = 0.000952$

8. (2 points) On her first five quizzes, Jordan scored 8.5, 10, 6.5, 7, and 7.5. Find the average of Jordan's quiz scores.

$$\frac{8.5 + 10 + 6.5 + 7 + 7.5}{5} = \frac{39.5}{5}$$

$= 7.9$

$$\begin{array}{r} 7.9 \\ 5 \overline{) 39.5} \\ \underline{35} \\ 45 \\ \underline{45} \\ 0 \end{array}$$

9. (2 points) Carry out the indicated operation.

(a) 32.5×0.19

$= \boxed{6.175}$

$$\begin{array}{r} 32.5 \\ \times 0.19 \\ \hline 2925 \\ 325 \\ \hline 6.175 \end{array}$$

(b) $19.98 \div (-3.7)$

$= \boxed{-5.4}$

$$\begin{array}{r} 5.4 \\ 3.7 \overline{) 19.98} \\ \underline{185} \\ 148 \\ \underline{148} \\ 0 \end{array}$$

10. (2 points) Combine like terms.

(a) $3.7x - 5.2y - 1.5x - 3.9y$

$(3.7 - 1.5)x - (5.2 + 3.9)y$

$\boxed{2.2x - 9.1y}$

(b) $3r + 6.7t + 5t + 1.9r$

$= \boxed{4.9r + 11.7t}$

11. (6 points) Solve each equation. Write your solutions in decimal form.

(a) $4.1x + 5.6 = -6.7$

$$\begin{array}{r} -5.6 \quad -5.6 \\ \hline 4.1x = -12.3 \\ \hline 4.1 \quad 4.1 \end{array}$$

$\boxed{x = -3}$

(b) $6x - 11 = 8x + 4$

$$\begin{array}{r} -6x \quad -6x \\ \hline -11 = 2x + 4 \\ -4 \quad -4 \\ \hline -15 = 2x \end{array}$$

$\boxed{x = -\frac{15}{2} = -7.5}$

(c) $3(x + 2) = 5x - 7$

$$\begin{array}{r} 3x + 6 = 5x - 7 \\ -3x \quad -3x \\ \hline 6 = 2x - 7 \\ +7 \quad +7 \\ \hline 13 = 2x \end{array}$$

$\boxed{x = \frac{13}{2} = 6.5}$

12. (1 point) Joe bought 8 notebooks for \$6.32. What was the price per notebook?

$$\begin{array}{r} .79 \\ 8 \overline{) 6.32} \\ \underline{56} \\ 72 \\ \underline{72} \\ 0 \end{array}$$

\$ 0.79 or 79¢

13. (1 point) Find and simplify the ratio of $8\frac{1}{2}$ to $3\frac{4}{5}$.

$$\frac{8\frac{1}{2}}{3\frac{4}{5}} = \frac{\frac{17}{2}}{\frac{19}{5}} = \frac{17}{2} \times \frac{5}{19} = \frac{85}{38}$$

14. (2 points) Solve each proportion.

(a) $\frac{2}{5} = \frac{12}{x}$ $2x = 60$

x = 30

(b) $\frac{6.76}{t} = \frac{10.4}{12.4}$

$10.4t = 83.824$

t = 8.06

$$\begin{array}{r} 8.06 \\ 10.4 \overline{) 83.824} \\ \underline{832} \\ 624 \\ \underline{624} \\ 0 \end{array}$$

$$\begin{array}{r} 6.76 \\ 12.4 \\ \hline 2704 \\ 1352 \\ \hline 676 \\ \hline 83.824 \end{array}$$

15. (2 points) Charise bought a shirt that was marked \$24.95. If tax on the shirt was 8%, what was her total cost?

$$\begin{array}{r} 24.95 \\ 0.08 \\ \hline 1.9960 \end{array}$$

Tax is \$2

TOTAL COST IS
\$26.95

16. (2 points) On a map, 0.25 in represents 50 mi. If two cities are 3.25 in apart on the map, how far apart are they in reality?

$$\frac{0.25 \text{ in}}{50 \text{ mi}} = \frac{3.25 \text{ in}}{X}$$

$$\begin{array}{r} 3.25 \\ \underline{50} \\ 162.50 \end{array}$$

$$\begin{array}{r} 650. \\ 0.25 \overline{)162.50} \\ \underline{150} \\ 125 \\ \underline{125} \\ 00 \end{array}$$

$$X = 650 \text{ mi}$$

17. (1 point) What percent of 5 is 3.5?

$$X(5) = 3.5$$

$$\frac{5X}{5} = \frac{3.5}{5}$$

$$X = 0.7 = 70\%$$

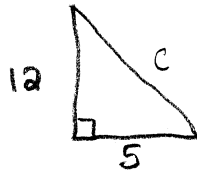
$$\begin{array}{r} .7 \\ 5 \overline{)3.5} \\ \underline{35} \\ 0 \end{array}$$

18. (1 point) Write $\frac{3}{8}$ in percent notation.

$$\begin{array}{r} .375 \\ 8 \overline{)3.000} \\ \underline{24} \\ 60 \\ \underline{56} \\ 40 \\ \underline{40} \\ 0 \end{array}$$

$$\frac{3}{8} = 0.375 = 37.5\%$$

19. (1 point) Use the Pythagorean theorem to find the length of the hypotenuse of a right triangle whose legs have the lengths $a = 12$ and $b = 5$.



$$12^2 + 5^2 = c^2$$

$$144 + 25 = 169$$

$$c^2 = 169 \Rightarrow c = 13$$

20. (1 point) What whole number is closest to $\sqrt{38}$?

$$\text{Since } 6^2 = 36 \text{ and } 7^2 = 49,$$

$$\sqrt{38} \text{ is close to } 6.$$