EXAM 3X   PRE ALGEBRA   Dr. Rapalje

SHOW ALL WORK on this test or on separate!   Circle final answers. CALCULATORS—YES!!

In 1 – 4, perform the indicated operations. Round decimals to the nearest hundredth.

1. $24.12 + 6.279 + 13$ 2. $3.21 – 8.4$ 3. $8.02 \div (0.4)$ 4. $(1.3)^3$

In 5 – 7, express each decimal as a fraction in lowest terms.

5. 0.05 6. 0.024 7. 0.485

In 8 – 10, insert $<$, $>$, or $=$ to make a true statement.

8. 27.254 27.245 9. 76.92 76.920 10. $0.068888\ldots$ $0.0686868\ldots$

In 11 – 13, solve for x.

11. $2x – 5.6 = 0.028$ 12. $-3.24 + x = -1.8$ 13. $\dfrac{x}{2.1} - 2 = -4$

In 14 – 15, simplify. Express answers in decimal form.

14. $\dfrac{(0.03)^2}{0.01}$ 15. $\dfrac{17.24 + 3.76}{-0.2}$

16.   Find the distance around a circular flower bed if the radius of the circle is 10 feet.
        Use 3.14 for the value of π and the formula $C = \pi d$.

In 17 – 20, solve the proportion.

17. $\dfrac{7}{13} = \dfrac{x}{26}$ **18.** $\dfrac{4}{5} = \dfrac{16}{x}$ **19.** $\dfrac{x}{200} = \dfrac{0.5}{50}$ **20.** $\dfrac{7}{13} = \dfrac{x}{26}$

In 21 – 23, find the value of each square root. Give exact value if possible. Round to nearest thousandth if necessary.

21. $\sqrt{81}$ **22.** $\sqrt{\dfrac{16}{49}}$ **23.** $\sqrt{6}$

In 24 – 26, solve for x in each of the following right triangles.

24.   Legs are 6 and 8   **25.** Legs are 5 and x   **26.** Legs are 8 and x
       Hypotenuse is x   Hypotenuse is 13   Hypotenuse is 12

27. Express each percent as a decimal.
    a)   37%   b)   150%   c)   0.2%

28. Express each decimal as a percent.
    a)   0.052   b)   0.4   c)   2.7

29. Express each percent as a fraction in lowest terms.

   a) 95%   b) 3.5%   c) 0.2%

30. Express each fraction or mixed number as a percent. Round to nearest tenth if necessary.

   a) $\dfrac{4}{5}$ b) $\dfrac{5}{9}$ c) $2\dfrac{1}{8}$

In 31 – 36, translate into an equation or proportion and solve. Round to nearest tenth if necessary.

31. What number is 5% of 50?   **32. 5% of what number is 50?**

33. What percent of 50 is 5?   **34. What percent of 5 is 50?**

35.   20 is what percent of 80?   **36. 20% of what number is 80?**

37. What number is 20% of 80?

38. 80% of what number is 20?

39. A new dress whose original price is $50 is on sale for 40% off. What is the sale price of the dress?

40. A new dress whose original price is $50 is on sale for 40% off with an additional 30% off. Find the final sale price of the dress.

BONUS POINTS:

1. Approximately how many hours per week do you spend on math homework?

2. Academic Success Center?? Approximately how many hours since the last test?

3. Practice Test??

4. Extra Credit: The sale price of a dress is $50, after a 70% discount. What was the original price of the dress? Show work to justify your answer!

EXAM 3X   PRE ALGEBRA   Dr. Rapalje

MAT 0012   EXAM 3X   Solutions

1. $43.399 = \boxed{43.40}$ 2. $\boxed{-5.19}$ 3. $\boxed{20.05}$ 4. $2.197 = \boxed{2.20}$ 5. $.05 = \frac{5}{100} = \boxed{\frac{1}{20}}$

6. $0.024 = \frac{24}{1000} = \boxed{\frac{3}{125}}$ 7. $0.485 = \frac{485}{1000} = \boxed{\frac{97}{200}}$ 8. $27.254 \boxed{>} 27.245$

9. $76.92 \boxed{=} 76.920$ 10. $0.068888... \boxed{>} 0.06868...$

11. $2x - 5.6 = 0.028$
$\underline{+5.6 \; +5.6}$
$2x = 5.628$
$\boxed{x = 2.814}$

12. $-3.24 + x = -1.8$
$\underline{+3.24 +3.24}$
$\boxed{x = 1.44}$

13. $\frac{x}{2 \cdot 1} - 2 = -4$
$\phantom{\frac{x}{2 \cdot 1}} +2 \quad +2$
$2.1\left(\frac{x}{2.1}\right) = (-2)^{2 \cdot 1}$
$\boxed{x = -4.2}$

14. $\boxed{0.09}$ 15. $\frac{21.00}{-0.2} = \boxed{-105}$ 16. $C = \pi d, \; d = 20$
$C = (3.14)(20)$
$= \boxed{62.8 \text{ ft.}}$

17. $\frac{7}{13} = \frac{x}{26}$ or $\frac{7 \cdot 2}{13 \cdot 2} = \frac{x}{26}$
$13x = 7 \cdot 26$
$13x = 182$
$x = \frac{182}{13} = \boxed{14}$ $\boxed{14 = x}$

18. $\frac{4}{5} = \frac{16}{x}$
$4x = 5 \cdot 16$
$4x = 80$
$\boxed{x = 20}$

19. $\frac{x}{200} = \frac{0.5}{50}$
$50x = 200(0.5)$
$50x = 100$
$\boxed{x = 2}$

20. (Same as 17! Sorry!)

21. $\sqrt{81} = \boxed{9}$

22. $\sqrt{\frac{16}{49}} = \frac{\sqrt{16}}{\sqrt{49}} = \boxed{\frac{4}{7}}$ 23. $\sqrt{6} \approx \boxed{2.449}$

24. $6^2 + 8^2 = x^2$
$36 + 64 = x^2$
$100 = x^2$
$x = \pm 10$
$\boxed{x = 10}$

25. $5^2 + x^2 = 13^2$
$25 + x^2 = 169$
$\underline{-25 -25}$
$x^2 = 144$
$x = \pm 12$
$\boxed{x = 12}$

26. $8^2 + x^2 = 12^2$
$64 + x^2 = 144$
$\underline{-64 -64}$
$x^2 = 80$
$x = \pm\sqrt{80}$
$\boxed{x \approx 8.94}$

27 a) $37\% = \boxed{0.37}$
b) $150\% = \boxed{1.5}$
c) $.2\% = \boxed{0.002}$

28 a) $0.052 = \boxed{5.2\%}$
b) $0.40 = \boxed{40\%}$
c) $2.7 = \boxed{270\%}$

29 a) $95\% = \frac{95}{100} = \boxed{\frac{19}{20}}$
b) $3.5\% = .035 = \frac{35}{1000} = \boxed{\frac{7}{200}}$
c) $.2\% = .002 = \frac{2}{1000} = \boxed{\frac{1}{500}}$

30 a) $\frac{4}{5} = 0.80 = \boxed{80\%}$
b) $\frac{5}{9} = 0.555... = \boxed{55.6\%}$
c) $2\frac{1}{8} = 2.125 = \boxed{212.5\%}$

31. $x = 0.05(50)$
$\boxed{x = 2.5}$

32. $5\%(x) = 50$
$.05x = 50$
$x = \frac{50}{.05} = \boxed{1000}$

33. $x\%(50) = 5$
$x\% = \frac{5}{50} = \frac{1}{10} = 0.10$
$\boxed{x = 10\%}$

34. $x\% \cdot 5 = 50$
$x\% = \frac{50}{5} = 10$
$x = \boxed{1000\%}$

35. $\frac{20}{80} = \frac{x\% \cdot 80}{80}$
$\frac{1}{4} = x\%$
$x = \boxed{25\%}$

36. $20\% x = 80$
$.20x = 80$
$x = \frac{80}{.20}$
$\boxed{x = 400}$

37. $x = 20\% \cdot 80$
$x = .2(80)$
$\boxed{x = 16}$

38. $80\% x = 20$
$.8x = 20$
$x = \frac{20}{.8} = \boxed{25}$

39. $40\% \text{ OFF} = 60\% \text{ ON}$
$\$50 x \cdot .6 = \boxed{30}$

40. $40\% \text{ off} = 60\% \text{ on} = .6(50) = \boxed{30}$
$30\% \text{ off} = 70\% \text{ on} = .7(30) = \boxed{21}$

E.C. $70\% \text{ OFF} = 30\% \text{ ON}$
$30\% \text{ of Orig} = \text{Sale Price}$
$.30 x = \$50$
$x = \frac{50}{.30} = \boxed{166.67}$