

SOLVE THE FOLLOWING PROBLEMS WITHOUT YOUR CALCULATOR.

1) TRUE or FALSE.

- $Q \subseteq W$
- $I \cup W = I$
- $Q \cap S = I$
- $Q \subseteq R$
- $Q \cup S = R$
- $\sqrt{x} = -8$, for some real x
- $\pi = \frac{22}{7}$
- $\sqrt{-x} = 4$, for some real x
- A non repeating, non terminating decimal is an irrational number.

2) PERFORM THE FOLLOWING WITHOUT THE USE OF YOUR CALCULATOR.

- $30.645 + 0.32$
- $17.1 - 6.7432$
- $4.28 \div 0.2$
- 21.6×1.704
- $7.8645 \div 32.1$
- $17 - 3.285 - 6.06$

- 3) Diane needs 2.7 m of material at \$1.90 per meter, 4.8 m of material at \$1.50 per meter, 5 spools of thread at 70¢ each, and 2 zippers at 75¢ each. Will a \$20 bill cover the purchase? How much money does she have left (or need)? (No calculator.)

4) REWRITE AS A STANDARD NUMERAL.

- $2.184 \cdot 10^{-5}$
- $1.66 \cdot 10^4$

5) WRITE IN SCIENTIFIC NOTATION.

- .00021
- 146,000
- 467.31

6) SOLVE FOR x .

- $3^x = 81$
- $25^x = \frac{1}{5}$
- $9^{-x} = 27$
- $25^x = 125$
- $(128)^{-x} = 16$

7) SIMPLIFY EACH OF THE FOLLOWING COMPLETELY.

- $9^{\frac{1}{2}}$
- $36^{-\frac{1}{2}}$
- $(-8)^{\frac{4}{3}}$
- $16^{-\frac{3}{4}}$

8) SIMPLIFY EACH OF THE FOLLOWING.

- $\sqrt{200}$
- $\sqrt{48}$
- $-3\sqrt{125}$
- $\sqrt{28}$
- $\sqrt[3]{81}$
- $\sqrt{-36}$
- $\sqrt{0}$
- $\frac{1}{6}\sqrt[3]{-40}$

9) CLASSIFY EACH OF THE FOLLOWING USING: N, W, I, Q, S, and R

- 4
- $\sqrt{5}$
- 0
- $\frac{3}{7}$
- $0.\overline{57}$
- π
- 9
- $-\frac{2}{5}$

20) **CLASSIFY AS RATIONAL OR IRRATIONAL.**

- a. $3\sqrt{5}$ b. 16.03143144314443...
- c. $5\sqrt{2} - \sqrt{2}$ d. 4.7
- e. $\sqrt{6.41}$ f. $\sqrt{169}$
- g. $\sqrt{7}$ h. $\frac{35}{.72}$
- i. 2.375375...

21) Find the length of the diagonal of a square whose side is $\sqrt{8}$ cm.

SOLVE THE FOLLOWING PROBLEMS WITH YOUR CALCULATOR.

- 22) Last year, Maria earned \$388 per week. This year, her salary increased to \$416 per week. What is the percent of increase (to the nearest tenth of a percent)?
- 23) 25 is 85% of what number (to the nearest tenth)?
- 24) Suppose that you buy a car for \$24,000 plus 6% sales tax. Find the sales tax and the total bill.
- 25) A TV was purchased and 8% tax was added to the purchase price. If the total bill was \$515.60, how much did the TV cost?
- 26) If 7.15 gallons of a certain liquid weigh 40 pounds, how much does one gallon weigh?
- 27) If a new condo costs \$110,000 this year, what will it be worth in 10 years, if we assume a constant inflation rate of 12%, compounded annually?
- 28) You must score 90% or better to receive an A on this test. If there are 40 points on the test, how many must you answer correctly to receive an A?

- 29) A dress has been marked down from \$40 to \$29. What percent discount is this?
- 30) A \$9.85 item is being discounted 12%. Find the sale price.
- 31) If you want to earn an annual rate of 10% on your investment, how much (to the nearest cent) should you pay for a note that will be worth \$5000 in 9 months?
- 32) If you must pay \$960 for a note that will be worth \$1000 in 6 months, what annual simple interest rate will you earn?
- 33) If \$5000 is invested at 18% compounded monthly, what is the amount after 2 years?
- 34) To save for their retirement, a couple deposits \$10,000 in an account that pays 8% compounded quarterly. What will be the value of their investment after 25 years? How much interest have they earned?
- 35) Find the effective annual rate of the following investment: \$1000 investment compounded quarterly for 1 year at 8%. (Round to nearest hundredth)
- 36) Find the compound interest earned by the deposit. Round to the nearest cent.
\$3,300 at 11% compounded semiannually for 8 years
- 37) Find the simple interest and the final value of the deposit given the following information. Round your answer to the nearest cent
\$12,944 earning 13.0% for 10 months
- 38) Given: $\frac{7}{17}$
- a. How large could the repetend be?
- b. Change to a decimal

Answer Key

Testname: T102CHAP6_REVIEW

- 1) a. F b. T c. F d. T
 e. T f. F g. F h. T
 i. T
- 2) a. 30.965 b. 10.3568 c. 21.4
 d. 36.8064 e. 0.245 f. 7.655
- 3) Yes, she still has \$2.67 left over.
- 4) a. 0.00002184 b. 16,600
- 5) a. 2.1×10^{-4} b. 1.46×10^5
 a. 4.6731×10^2
- 6) a. 4 b. $-\frac{1}{2}$ c. $-\frac{3}{2}$
 d. $\frac{3}{2}$ e. $-\frac{4}{7}$
- 7) a. 3 b. $\frac{1}{6}$
 c. 16 d. $\frac{1}{8}$
- 8) a. $10\sqrt{2}$ b. $4\sqrt{3}$
 c. $-15\sqrt{5}$ d. $2\sqrt{7}$
 e. $3\sqrt[3]{3}$ f. not a Real Number
 g. 0 h. $-\frac{1}{3}\sqrt[3]{5}$
- 9) a. I, Q, R b. S, R
 c. W, I, Q, R d. Q, R
 e. Q, R f. S, R
 g. N, W, I, Q, R h. Q, R
- 10) a. = b. > c. <
 d. < e. =
- 11) a. 580% b. $83.\bar{3}\%$
 c. 675%
- 12) a. .025 b. .004 c. $2.\bar{4}$
 d. .015 e. 497,000 f. .0327
 g. $0.\overline{285714}$ h. 0.3
- 13) .42 and $\frac{21}{50}$
- 14) a. $\frac{622}{495}$ b. $\frac{173}{500}$ c. $\frac{322}{99}$
 d. $\frac{1461}{10}$ e. $\frac{62}{9}$ f. $\frac{11}{20}$
- 15) a. Answers will vary, but 0.56521
 b. 0.56521222112221...
- 16) a. 23 b. 23.5
 c. 23.50 d. 23.4990
- 17) $(7 \cdot 10^2) + (3 \cdot 10^1) + (0 \cdot 10^0) + (9 \cdot 10^{-1}) + (1 \cdot 10^{-2}) + (0 \cdot 10^{-3}) + (5 \cdot 10^{-4})$
- 18) a. 31.6 b. 0.0000302
 c. 0.9 d. 0.375
 e. 0.45 f. $0.\bar{3}$
- 19) $0.\overline{56}$, $0.\overline{565565556...}$, $0.565566556666...,$
 $0.\overline{56}$, $0.\overline{566}$, $0.566566656666...,$ $0.\overline{56}$
- 20) a. S b. S c. S
 d. Q e. Q f. Q
 g. S h. Q i. Q
- 21) 4 cm
- 22) 7.2%
- 23) 29.4
- 24) \$1440; \$25,440
- 25) \$477.41
- 26) $5.59440\bar{5}$ lbs (≈ 5.6 lbs)
- 27) \$341,643.30
- 28) 36 or more
- 29) 27.5%
- 30) \$8.67
- 31) \$4651.16
- 32) $8.\bar{3}\%$
- 33) \$7,147.51
- 34) \$72,446.46; \$62,466.46 in interest
- 35) 8.24%
- 36) \$4472.37
- 37) \$1402.27; \$14,346.27
- 38) a. 16 digits
 b. 0.4117647058823529