



Name: _____ Date: _____

Foundations of Algebra: Unit 1 Study Guide




Topic 1: Integer operations

1) $-3 - 5$ -8	2) $7 - -3$ 10	3) $17 + (-48)$ -31
4) $-7 + 8$ 1	5) $-6 - 6$ -12	6) $4(14)$ 56
7) $-12 \div -2$ 6	8) $16(-2)$ -32	9) $100 \div -5$ -20
10) A submarine is in the middle of the ocean at a depth of 115 feet. It descends for another 40 feet. How far under the surface of the water is the submarine?  $-115 - 40 = -155 \text{ ft}$		
11) A roller coaster begins at 90 feet above ground level. Then it descends on its first drop by 105 feet. Find the height of the coaster after the first descent  $90 - 105 = -15 \text{ Feet}$ <i>(IT WENT INTO A CAVE UNDERGROUND!)</i>		

Topic 2: Fraction operations: Leave all values as simplified fractions or as improper fractions (no mixed numbers!)

12) $\frac{52}{65} = \frac{4}{5}$	13) $\frac{4}{7} + \frac{2}{3} = \frac{26}{21}$
14) $6\frac{1}{8} + \frac{3}{8} = \frac{13}{2}$	15) $\frac{4}{5} \times \frac{6}{7} = \frac{24}{35}$
16) $\frac{5}{9} \div \frac{6}{7} = \frac{35}{54}$	17) $7\frac{5}{11} = \frac{82}{11}$
18) $\frac{16}{44} = \frac{4}{11}$	19) $\frac{2}{5} - \frac{6}{5} = -\frac{4}{5}$
20) $\frac{12}{5} - 1\frac{1}{4} = \frac{23}{20}$	21) $\frac{2}{3} \cdot \frac{9}{5} = \frac{6}{5}$

Topic 3: Decimals and Place value
Round each number to the value indicated

22) 2.8325 to the thousandths 2.833	23) 5.70166 to the nearest whole number 6
24) 8.232 to the tenth 8.2	25) 9.937 to the hundredth 9.94
26) 3.83592 to the nearest whole number 4	27) 3.83592 to the tenth 3.8
28) 3.83592 to the hundredth 3.84	29) 3.83592 to the thousandth 3.836
<p>30) The oldest dog to have lived was an Australian cattle dog named Bluey. He lived to be 29 years and 4 months. What is his age rounded to the nearest whole year? 29 YEARS (4 MONTHS IS NOT ENOUGH TO ROUND TO THE NEXT YEAR)</p>	
<p>31)  When completing tax forms, require you to list exact dollar amounts however in Georgia, the amount is always rounded to the nearest dollar. If you made \$345.12 last year how would you report this on your Georgia taxes? (meaning rounded to the nearest dollar) \$345 (.12 IS NOT ENOUGH TO ROUND UP TO 346)</p>	



Topic 4: Rational v. irrational numbers

For each determine if the number is rational or irrational

32) $5\frac{1}{2}$ R	33) $-\sqrt{64}$ R	34) $\sqrt{6}$ F
35) $\sqrt{9}$ R	36) 5.1 R	37) $\frac{7}{8}$ R
38) -4 R	39) $\sqrt{3} + 17$ I	40) π I

Topic 5: Determining value

Place the numbers in order from least to greatest

41) 0.05, 0.5, 0.025, 0.2 <i>0.025, 0.05, 0.2, 0.5</i>
42) 1.15, 1.5, 2, 1.1 <i>1.1, 1.15, 1.5, 2</i>
43) 5.1, 5.03, 5.29, 5.67 <i>5.03, 5.1, 5.29, 5.67</i>

Fill in the blank with the appropriate symbol (<, >, or =)

44) $0.5 < \frac{6}{7}$ <i>.9</i>	45) $\sqrt{4} = 2$ <i>2</i>
46) $15.1 > 15.01$	47) $0.8 > \frac{2}{25}$ <i>.08</i>
48) $-3 < 5$	49) $\frac{1}{10} > \frac{1}{100}$ <i>.1 .01</i>
50) $16 = \frac{32}{2}$ <i>16</i>	51) $\frac{1}{16} < 16$ <i>.06</i>

Place the values on the number line with indicated letter

