126. c. The tenths place is the ﬁrst number to the right of the decimal. The number 8 is in the tenths place. To decide whether to round up or stay the same, look at the number to the right of the tenths place. Since that number is 5 or above, round the tenths place up to 9 and drop the digits after the tenths place.

127. b.The two items that Kara bought must be subtracted from the amount of money she had in the beginning; $23.00 − $3.27 − $14.98 = $4.75.

128. a. To ﬁnd the proﬁt, you must subtract what Lucas paid for the motorcycle from the sale price; $7,777.77 − $5,875.98 = $1,901.79.

129. c. If you add zeros to the end of Dan’s and Ed’s averages to make them have three decimal places, it will be easy to compare the batting averages. The four averages are: 0.349, 0.200, 0.350, and 0.299; 0.350 is the largest.

130. d.You must multiply the number of towels sold by the price of each towel; 85 × $6.95 = $590.75.

131. b.You must divide the cost of the food by 4 to split the cost evenly among the four friends; $33.20 ÷ 4 = $8.30. If you chose d, you divided by 3, and that does not take into account Rob’s part of the bill.

132. a. To ﬁnd the average number of miles, you should divide the total number of miles by the number of days; 11.1 ÷ 3 = 3.7.

133. d.To ﬁnd the price of each individual ticket, you should divide the total cost by the number of tickets purchased; $43.50 ÷ 6 = $7.25.

134. b.To ﬁnd the total cost of six bottles, you must multiply the cost per bottle by 6; $1.15 × 6 = $6.90.

135. c. The hundredths place is the second digit to the right of the decimal point (3). To decide how to round, you must look at the digit to the right of the hundredths place (5). Since this digit is 5 or greater, the hundredths place is rounded up to 4, producing the number 468.24.

136. b.Find the difference between 0.24 and 0.25 mm by subtracting: 0.25 − 0.24 = 0.01 mm. Half of this is 0.01 ÷ 2 = 0.005. Add to 0.24 to get 0.245 mm.

137. a. Keri’s three scores need to be added to ﬁnd the total score. To add decimals, line up the numbers and decimal points vertically and add normally; 5.6 + 5.85 + 5.90 = 17.35.

138. d.To multiply decimals, multiply normally, count the number of decimal places in the problem, then use the same number of decimal places in the answer; 35 × $4.88 = $170.80, since there are two decimal places in the problem, there should be two in the answer.

139. c. To divide numbers written in scientiﬁc notation, divide the ﬁrst numbers (6.8 ÷ 2.0 = 3.4); then divide the powers of 10, which means you subtract the exponents of 10 (105 ÷ 10 2 = 103). The answer is 3.4 × 103.

140. a. The cost of each item must be added together; $1.95 + $2.25 + $1.05 = $5.25.

141. b.Last year’s budget must be subtracted from this year’s budget; 14.1 million − 12.5 million = 1.6 million. Since both numbers are millions, the 14.1 and 12.5 can simply be subtracted and million is added to the answer.

142. a. The three distances must be added together. To add decimals, line the numbers up vertically so that the decimal points are aligned. Then, add normally; 3.1 + 4.25 + 10.8 = 18.15.

143. d.The fastest time is the smallest number. If you chose c, you chose the slowest time since it is the largest number (this person took the longest amount of time to ﬁnish the race). To compare decimals easily, make the numbers have the same number of decimal places; 10.09 < 10.10 < 10.14 < 10.20. (Note: adding zeros to the end of a number, to the right of the decimal point, does not change the value of the number.)

144. a. The thousandths place is the third digit to the right of the decimal point (1). To decide whether to round up or to stay the same, look at the digit to the right of the thousandths place (6). Since 6 is greater than or equal to 5, you round up to 27.322.

145. d.To compare decimals, you can add zeros to the end of the number after the decimal point (this will not change the value of the number); 0.315 < 0.317 < 0.320. Choice a is incorrect because 0.311 is smaller than 0.315. Choice b is incorrect because 0.309 is smaller than 0.315. Choice c is incorrect because 0.321 is larger than 0.32.

146. b.To multiply numbers written in scientiﬁc notation, multiply the ﬁrst numbers (5.2 × 6.5 = 33.8). Then, multiply the powers of ten by adding the exponents (103 × 107 = 1010); 33.8 × 1010 is the answer, except it is not in scientiﬁc notation. The decimal in 33.8 must be moved to create a number between 1 and 10. Placing the decimal between the 3’s will accomplish this (3.38). Since the decimal has been moved once to the left, the exponent of ten must be increased by 1. The answer is 3.38 × 1011.

147. a. The school record is less than Brian’s time. Therefore, 2.68 must be subtracted from 13.4; 13.4 − 2.68 = 10.72. To subtract decimals, line up the numbers vertically so that the decimal points are aligned. Since 13.4 has one less decimal place than 2.68, you must add a zero after the 4 (13.40) before subtracting. After you have done this, subtract normally. If you chose d, you added instead of subtracted.

148. d.To ﬁnd each installment, the total yearly cost ($390) must be divided by the number of payments (12); 390 ÷ 12 = $32.50. Choices a and c do not make sense because they would mean that each monthly installment (payment) is more than the total yearly cost.

149. c. To ﬁnd out how much greater a number is, you need to subtract; 0.0543 − 0.002 = 0.0523. To subtract decimals, line the numbers up vertically so that the decimal points align. Then, subtract normally. If you chose a, you did not line up the decimal places correctly. The 2 should go under the 4. If you chose d, you added instead of subtracted.

150. a. To ﬁnd out how many more miles he ran today, subtract yesterday’s miles from today’s miles. 10.4 − 6.8. To subtract decimals, line the numbers up vertically so that the decimal points align. Then, subtract normally. If you chose b, you made an error in borrowing. You forgot to change the 10 to a 9 when borrowing 1 for the 4.

151. d.To ﬁnd how much Jay spent, you must multiply the cost of each stamp ($0.37) by the number of stamps purchased (25); $0.37 × 25 = $9.25. To multiply decimals, multiply normally, then count the number of decimal places in the problem. Place the decimal point in the answer so that it contains the same number of decimal places as the problem does.

152. c. If you add a zero to the end of 5.6 to get 5.60, it is easier to see that 5.56 < 5.60 < 5.81. Choice a is less than 5.56. Choice b is greater than 5.81. Choice d is less than 5.56.

153. d.You must ﬁnd the difference (subtraction) between her goal and what she has already sold. Add a decimal and two zeros to the end of $5,000 ($5,000.00) to make the subtraction easier; $5,000.00 − $3,574.38 = $1,425.62.

154. c. If you add zeros to the end of each of the numbers so that each number has 5 places after the decimal point, it is easier to compare the numbers; 0.00700 < 0.04236 < 0.06400 < 0.10000.

155. b.To ﬁnd the average, you must add the items (97 + 78 + 84 + 86 = 345) and divide the sum by the total number of items (4); 345 ÷ 4 = 86.25. Remember to add a decimal point and zeros after the decimal when dividing (345.00 ÷ 4).

156. c. You must multiply 11.7 by 5; 11.7 × 5 = 58.5. To multiply decimals, multiply normally, then count the total number of decimal places in the problem and move the decimal point in the answer so that it contains the same number of decimal places. If you chose a, you forgot to add the decimal point after you multiplied. If you chose d, you forgot to carry a 3 after multiplying 7 by 5 (35, place the 5 below and carry the 3).

157. d.The fastest time is the smallest time. To easily compare decimals, add a zero to the end of 50.9 and 50.2 so that they read 50.90 and 50.20. Then compare the four numbers. The times are listed from smallest to largest time below. 50.20 50.24 50.32 50.90 The smallest time is 50.20 seconds.

158. a. Thirty minutes is half an hour. Therefore, divide the number of miles Mike can jog in one hour by 2 to ﬁnd the number he can jog in half an hour; 6.5 ÷ 2 = 3.25 miles.

159. a. The hash marks indicate units of 0.01 between 0.75 and 0.80. Point A is 0.77. See the ﬁgure below. A .75 .76 .77 .78 .79 .80

160. c. Nicole has 15 pounds to divide into 20 baskets. Divide 15 by 20; 15 ÷ 20 = 0.75 pounds per basket.

161. b.Quickly compare decimals by adding zeros to the end of a decimal so that all numbers being compared have the same number of decimal places. Choice a does not work: 635.80 635.90 635.93—the book’s call number Choice b does work: 635.80 635.93—the book’s call number 635.95 Choice c does not work: 635.93—the book’s call number 635.935 635.94 Choice d does not work: 635.93—the book’s call number 635.99 636.0

162. c. Change all of the comparisons to decimals by dividing the number of free-throws made by the number attempted. Michael’s average is 19 ÷ 30 = 0.633, John’s is 0.546, Larry’s was given as 0.745, and Charles’ was given as 0.81. The largest decimal is the best free-throw shooter. Add zeros to the ends of the decimals to compare easily. The shooters are listed from best to worst below. 0.810 Charles 0.745 Larry 0.633 Michael 0.546 John

163. a. From left to right, the ﬁrst decimal place is the tenths, the second is the hundredths, and the third is the thousandths. The ﬁrst criterion is that the hundredths digit is 4. The second decimal place is 4, only in choice aand choice c.The second criterion is that the ﬁrst decimal place is twice the third decimal place. This is only true in choice a, in which 6 is twice 3.

164. a. Multiply 11.5 by 32; 11.5 × 32 = 368 pounds.

165. c. Multiply 6 by $4.79; 6 × $4.79 = $28.74.

166. d.Use the formula d = rt (distance = rate × time). Substitute 117 miles for d. Substitute 2.25 hours for t and solve for r. 117 = 2.25r 2 1 . 1 2 7 5 = 2 2 . . 2 2 5 5 r r = 52 The rate is 52 miles per hour.

167. a. Subtract 0.25 from 3.5; 3.5 − 0.25 = 3.25 feet.

168. d.Multiply 6.5 by 110; 6.5 × 110 = 715 bricks.

169. b.Substitute 6 for r in the formula A = πr2 and solve for A. A = (3.14)(62) A = (3.14)(36) A = 113.04 The area of the circle is 113.04 square inches. A common mistake in this problem is to say that 62 is 12. This is NOT true; 62 means 6 × 6 which equals 36.

170. a. Multiply 34 by $0.06 to ﬁnd the total cost; 34 × $0.06 = $2.04.

171. d.Multiply 13.5 by 4 to ﬁnd the number of copies made; 13.5 × 4 = 54 copies.

172. b.Three tenths of a cent can be written as 0.3¢, or changed to dollars by moving the decimal point two places to the left, $0.003. If $0.003 is added to $1.349 the answer is $1.352.

173. a. $1.45 is rounded to $1.00. You are rounding to the ones place, so look at the place to the right (the tenths place) to decide whether to round up or stay the same. Since 4 is less than 5, the 1 stays the same and the places after the 1 become zero.

174. d.The insulation surrounds the whole pipe. If the diameter is 2.5 inches, the insulation will add 0.05 inches on both sides of the diameter. See the diagram below; 2.5 + 0.5 + 0.5 = 3.5 inches.

175. c. To ﬁnd the cost per ounce, divide the cost by the number of ounces; $3.20 ÷ 64 = $0.05 per ounce.

176. d.First, ﬁnd the number of hours George worked. From 7:00 A.M. to 3:30 P.M. is 81 2 hours. Take away his 3 4 hour break and he works 73 4 hours. To ﬁnd what George is paid, multiply the hours worked, 7.75 (changed from the fraction), by the pay per hour, $10.50; 7.75 × $10.50 = $81.375. The directions say to round to the nearest cent. Therefore, the answer is $81.38.

177. a. Since the tank was full on Monday, whatever it takes to ﬁll the tank is the amount of gas that she has used. Therefore, she has used 12.4 gallons of gas. Next, ﬁnd the number of miles Marci traveled by subtracting Monday’s odometer reading from Friday’s odometer reading; 32,659.7 − 32,461.3 = 198.4 miles. Divide the miles driven by the gas used to ﬁnd the miles per gallon; 198.4 ÷ 12.4 = 16 miles per gallon.

178. d.Divide the $20 by $4.50 to ﬁnd the number of calculators she can buy; $20 ÷ $4.50 = 4.444. She can buy 4 calculators. She doesn’t have enough to buy a ﬁfth calculator. This means that she has spent $18 on calculators because $4.5 × 4 = $18. To ﬁnd how much she has left, subtract $20 and $18. The answer is $2.

179. b.Place the smallest number in the largest place value and work your way down, putting the digits in ascending order. Thus, the answer is 0.3568. 3.5 in .5 in 2.5 in .5 in

180. c. Zeros can be added to the end (right) of the decimal portion of a number without changing the value of the number; 12.0870 is equivalent to 12.087—a 0 has just been added to the end of the number.

181. d.When multiplying by a number less than 1, you get a product that is less than the number you started with. Multiplying by a number greater than 1 gives you a larger number than you started with. Therefore, multiplying by 1.0002 will yield a number larger than the one you started with.

182. b.First, ﬁgure out the cost of the fence by multiplying the number of feet of fence by $3.25; 350 × $3.25 = $1,137.50. Next, ﬁnd the cost of the labor by multiplying the hours of labor by $15.75; 6 × $15.75 = $94.50. Add the two costs together to ﬁnd what Kelly owes Fabulous Fence; $1,137.50 + $94.50 = $1,232.

183. c. Find the amount of rain that has fallen so far; 2.6 + 3.4 + 2.1 = 8.1 cm. Find the difference between this amount and the average rainfall by subtracting; 9.7 − 8.1 = 1.6 cm.

184. c. It is moved two places to the right. When multiplying by multiples of 10, the decimal point is moved to the right according to the number of zeros. For example: Multiply by 10 and move the decimal one place; multiply by 1,000 and move the decimal three places.

185. a. Divide the cost of the turkey by the weight; $6.90 ÷ 1.5 = $4.60.

186. d.Multiply the price per piece by the number of pieces; 14.9 × 1,500 = 22,350 cents. Change the cents into dollars by dividing by 100 (move the decimal point two places to the left); 22,350 cents = $223.50.

187. b.It will move one place to the left. When dividing by multiples of 10, the decimal point is moved to the left according to the number of zeros. For example: Divide by 100 and move the decimal two places; divide by 1,000 and move the decimal three places.