Math Answers

1. c. The answer is $957,447. Two steps: (1) Find the percentage of the selling price that will be left after the broker takes 6% (100% – 6% = 94%). The desired net amount, $900,000, will be 94% of the selling price. (2) Find the required selling price by dividing the desired net by 94% ($900,000 ÷ 94% = $957,446.81, or $957,447 rounded to the nearest dollar).

8. d. The answer is $763,808.48. Four steps: (1) Find annual interest based on the interest rate and principal balance ($765,000 × 5.5% = $42,075). (2) Find one month's interest by dividing the annual interest by 12 ($42,075 ÷ 12 = $3,506.25). (3) Find the amount of the first monthly payment remaining after paying interest ($4,697.77 – $3,506.25 = $1,191.52). (4) Find the principal balance after paying $1,191.52 against the balance ($765,000 – $1,191.52 = $763,808.48).

11. a. The answer is $101,430. 5 × $500 × 12 = $30,000. 5 × $550 × 12 = $33,000. 5 × $600 × 12 = $36,000. Total PGI = $99,000. $99,000 - $2,970 (3%) = $96,030 $450 × 12 = $5,400 $96,030 + $5,400 = $101,430.

16. b. The answer is 2.5. $1,875 discount ÷ $75,000 mortgage loan = 0.025 or 2.5%, which is the same as 2.5 points.

23. c. The answer is $180,975. Find 127% of the cost three years ago: $142,500 × 127% = $180,975.

27. b. The answer is $12,500. The commission is found by multiplying the sales price by the brokerage (commission) rate ($250,000 × 5% = $12,500).

29. d. The answer is debit to the buyer, credit to the seller. At settlement, items prepaid by the seller and which will benefit the buyer will appear as debits to (charges against) the buyer and credits to the seller.

31. b. The answer is $117,814.71. $168,500 property value × 70% = $117,950 mortgage balance; $117,950 mortgage balance × 5.25% interest = $6,192.38 annual interest ÷ 12 months = $516.03 first month's interest; $651.32 – $516.03 = $135.29 principal paid in first month; $117,950 original mortgage balance – $135.29 principal payment = $117,814.71 mortgage balance after first month.

32. a. The answer is $3,505. 90 + 90 + 175 + 175 = 530 linear ft; 530 linear ft × $1.25 = $662.50 cost for labor; 530 ft × 6.5 ft = 3,445 sq ft; 3,445 sq ft × $0.82 = $2,824.90 cost of materials; $662.50 labor + $2,824.90 material = $3,487.40 total cost to construct fence.

39. c. The answer is $2,400. A point is 1% of the loan amount, not of the purchase price. Calculate what two points, or 2%, will be on the FHA loan of $120,000: $120,000 × 2% = $2,400.

40. c. The answer is $1,356. Step 1 determine the annual rent. 25' × 50' = 1,250 sq. ft. 1,250 × $15.50 = $19,375 annual rent Step 2 determine the fee. $19,375 × 7% = $1,356.25

45. a. The answer is $2,000. 100 feet frontage × $250 per front foot = $25,000 list price; $25,000 list price × 8% commission rate = $2,000 broker's commission fee.

65. b. The answer is $60,925. $56,500 net proceeds + $160 ad allowance = $56,660; $56,660 ÷ 93% (100% total costs – 7% commission) = $60,925 sales price.

67. a. The answer is $1,848. $6,600 income x 28% (0.28) = $1,848 (monthly PITI payment). The lender's 28/36 qualifying ratios mean that the purchaser's total monthly housing expenses should be no more than 28% of his or her total monthly gross income, and that the purchaser's total monthly obligations must not exceed 36% of his or her total monthly gross income.

74. a. The answer is $504,465. 4,320 square feet × $80.25 per square foot = $346,680 cost per square foot; $346,680 + $145,000 cost of lot + $12,785 other fees and costs = $504,465 total cost of property.

75. a. The answer is 8%. $189.06 monthly interest × 12 months = $2,268.72 annual interest; $2,268.72 annual interest ÷ $27,500 loan amount = 0.08 or 8% interest rate.

77. c. The answer is $336.87. Interest adjustment is a one-time advance payment of interest for the time between settlement and the end of the month. In this case, it is for 14 days. Although July has 31 days, we are told to use the 360-day year, which gives each month as 30 days. Three steps: (1) Find one year's interest on $157,500 at 5.5% interest ($157,500 × 5.5% = $8,662.50). (2) Find one day's interest by dividing the annual interest by 360 ($662.508 ÷ 360 = $24.06). (3) Find interest for 14 days ($24.06 per day × 14 days = $336.87).

123. d. The answer is $691,490. Amount to seller is 100% of selling price minus the 6% commission, or 94%. $650,000 (net price) ÷ 0.94 = $691,489.36, or $691,490 (rounded up).

126. a. The answer is $79,800. $2,593.50 commission split × 2 agents = $5,187 total commission; $5,187 total commission ÷ 6.5% commission rate = $79,800 sales price.

Test B

6. d. The answer is $76,856. 40 acres × $2,200 per acre = $88,000 sales price, and $88,000 ÷ 114.5% (100% sales price + 14.5% profit) = $76,855.90 original cost, rounded to $76,856.

9. d. The answer is $6,971.25. Two steps: (1) Find the gross commission by multiplying the sales price by the brokerage rate ($195,000 × 5.5% = $10,725). (2) Find the salesperson's 65% of the gross commission ($10,725 × 65% = $6,971.25).

44. a. The answer is $618.75. Two steps: (1) Find annual interest based on the interest rate and principal balance ($165,000 × 4.5% = $7,425). (2) Find one month's interest by dividing the annual interest by 12 ($7,425 ÷ 12 = $618.75).

60. c. The answer is $3,412.50. $87,500 residence value × 50% = $43,750 assessed value; $43,750 assessed value ÷ $100 = 437.5; 437.5 × $7.80 = $3,412.50 annual taxes.

62. b. The answer is debited $639.50. The buyer will be debited (charged) enough money on the closing statement to reimburse the seller for the unused portion of prepaid taxes. Three steps: (1) Find the monthly amount of the real estate taxes ($5,116 ÷ 12 = $426.33). (2) Find how many months lie between the settlement and the end of the year (15 days, or ½ month, in November and a full month in December = 1.5 months). (3) Find the taxes on 1½ months ($426.33 × 1.5 = $639.50).

79. c. The answer is $3,725. $102,000 + $72,000 = $174,000 ÷ 12 = $14,500/month $14,500 × 28% (0.28) = $4,060 $14,500 × 36% (0.36) = $5,220 – $1,495 other recurring debt = $3,725

89. a. The answer is $160,000. 100% – 6% = 94% $149,850 + $550 = $150,400 needed before commission. $150,400 ÷ 94% = $160,000.

93. c. The answer is $175,000. Tax rate = $4.50 ÷ 100 = 0.045 $984.38 × 2 = $1,968.76 annual taxes. $1,968.76 ÷ 0.045 = $43,750 assessed value $43,750 ÷ 25% = $175,000.

109. d. The answer is 235%. $62,275 sales price ÷ $26,500 original sales price two years ago = 2.35 or 235% gross profit.

114. b. The answer is $98,000. A lender's loan-to-value (LTV) ratio uses either the appraisal or the sales price for the value. The amount a property sold for at a previous transaction is irrelevant. In this case, the appraisal is less than the current selling price. If the loan is 80% of the value and the appraisal is used as the value, use this calculation to find the loan amount: $122,500 × 80% = $98,000.

122. a. The answer is $115,000. Three steps: (1) Find a year's interest by multiplying the first month's interest by 12 ($460 × 12 = $5,520). (2) Find the principal of the loan by dividing the annual interest by the interest rate ($5,520 ÷ 6% = $92,000). (3) Find the appraised value by dividing the loan amount by 80% because the principal (the loan) is 80% of the appraised value ($92,000 ÷ 80% = $115,000).

123. a. The answer is $180,000.00. $171,000 net ÷ 95% (100% – 5% commission) = $180,000 sales price.

129. d. The answer is $1,125,000. $90,000 ÷ 0.08 (8%) = $1,125,000

Test c answers

11. c. The answer is $18,111. $108,810 = 90% × $120,900. $87,048 = 80% × $108,810. $108,810 – $87,048 = $21,762. $21,762 – $5,000 + $350 + $250 + $749 = $18,111.

15. d. The answer is $30,000. Two steps: (1) Multiply the interest for one quarter by 4 to get one year's interest ($562.50 × 4 = $2,250). (2) Find the principal by dividing the amount of annual interest by the interest rate ($2,250 ÷ 7.5% = $30,000).

21. b. The answer is $233.33. Tax rate = 6,400 mills ÷ 1,000 = 6.40 ÷ 100 = 0.064 Assessed value = $125,000 × 35% = $43,750 $43,750 × 0.064 = $2,800 annual tax $2,800 ÷ 12 = $233.33 monthly tax

32. b. The answer is $175,532. Two steps: (1) Find what percentage of the selling price the seller will get after the broker takes 6% (100% – 6% = 94%). (2) Because the amount the seller wants to net is $165,000, which is also 94% of the gross selling price, find the actual gross selling price (to the nearest dollar) by dividing $165,000 by 94% ($165,000 ÷ 94% = $175,531.91, or $175,532).

38. a. The answer is $275,000. $22,000 net income ÷ 8% cap rate = $275,000 value of property.

59. d. The answer is $960. A front foot measures frontage on the front of the property. 80 feet × $200 = $16,000 sale price. $16,000 × 10% commission (0.10) = $1,600 (total commission). $1,600 × 60% (0.60) = $960 (the salesperson's commission).

61. a. The answer is $119.00. The deed tax due when recording a deed is 0.1% of the equity in the property, rounded upward to the nearest $0.50. $119,000 × 0.01 = $119.00.

70. a. The answer is $815. One square yard contains nine square feet. Three steps: (1) Find the area of the floor to be covered in square feet by multiplying length by width (15 ft × 20 ft = 300 sq ft). (2) Change square feet to square yards by dividing by 9 (300 sq ft ÷ 9 = 33.33 sq yd). (3) Multiply the number of square yards needed by the price per square yard (33.33 × $16.95 = $565). (4) Add the installation charge to the carpet cost ($565 + $250 = $815). Total cost is $815.

75. a. The answer is $405. A semiannual interest payment is paid twice a year. To find the amount of the payment, divide the annual interest amount by 2: $13,500 × 6% (0.06) (the interest rate) = $810 (annual interest amount); $810 ÷ 2 = $405 (semiannual interest).

80. c. The answer is 9.50%. $10,000 (annual NOI) ÷ $105,263(purchase price) = 9.5% (0.095) the capitalization rate

94. b. The answer is $131,400. $26,280 offer ÷ 20% share = $131,400 total value of property.

102. d. The answer is $323,000.00. If the assessment, $274,550, is 85% of market value, find the market value on which the assessment is based by dividing the assessment by 85% ($274,550 ÷ 0.85 = $323,000).

107. d. The answer is $119,743.59. The book value of the property is not related to the market value; book value is an accounting technique for getting the tax benefits of paper depreciation. Land does not depreciate in book value. The property (including land and improvements) was purchased for $142,000. Five steps: (1) Find the original book value of the improvements by subtracting the value of the land from the entire purchase price ($142,000 – $18,000 = $124,000). (2) Find the depreciation for one year using a 39-year economic life ($124,000 ÷ 39 = $3,179.49). (3) Find total depreciation over the last 7 years ($3,179.49 × 7 = $22,256.41). (4) Find the present book value of the improvement ($124,000 – $22,256.41 = $101,743.59). (5) Find the present book value of the improvement plus the land ($101,743.59 + $18,000 = $119,743.59).

108. d. The answer is $319,300. 103,000 sq ft × $62 per sq ft = $6,386,000 total construction cost; 6,386,000 × 5% down payment (100% sales price – 95% amount financed) = $319,300 developer needs to complete the project.

112. a. The answer is decrease more than $10,000. NOI of property is $8,000, which is 8% (0.08) of $100,000 value, or 10% (0.10) cap rate of $80,000 value; $100,000 – $80,000 = $20,000, which is a decrease of more than $10,000 to get a higher cap rate. The less the investor puts into the property, the greater the rate of return.

113. b. The answer is $387,492. Two steps: (1) Find the entire commission by doubling listing broker's half (2 × $12,953.50 = $25,907). (2) Find the sales price by dividing the entire commission by the brokerage rate ($25,907 ÷ 6.5% = $387,492).

117. a. The answer is $191,625. The homeowner's equity is the difference between the market value of her property and the debt that encumbers it. Original cost ($250,000) + increase in value ($250,000 × 15% (0.15) = $37,500) = current market value ($287,500) Current market value ($287,500) – mortgage debt ($95,875) = the homeowner's equity ($191,625)

118. c. The answer is $1,074. $1,743.25 annual taxes ÷ 360 days = $4.84 daily rate for taxes; January 1 to August 12, based on 30-day months = 222 days (30 days for each of the 7 months for January through July plus 12 days in August, or 210 + 12 = 222 days); 222 days × $4.84 daily rate = $1,074.48 prorated taxes seller owes.

122. a. The answer is 5.8%. $55,042 commission ÷ $949,000 sales price = 5.8% (0.058) commission rate.

125. d. The answer is $71,114.09. Four steps: (1) Find the buyer's required down payment by subtracting the loan from the price ($234,500 – $167,500 = $67,000). (2) Find the monthly taxes by dividing the annual taxes by 12 ($4,880.96 ÷ 12 = $406.746). (3) Find the value of 9.5 months' taxes at $406.746 per month ($406.746 × 9.5 = $3,864.09). (4) Find how much cash the buyer needs so far, and then subtract the deposit already paid ($67,000 down payment + $3,864.09 prorated tax + $2,250 other closing costs – $2,000 deposit = $71,114.09).

127. c. The answer is $6,375. $51,000 loan balance ÷ 80% = $63,750 sales price; $63,750 sales price × 20% (100% sales price – 80% loan = 20% down payment) = $12,750 down payment; $63,750 sales price × 10% deposit = $6,375 earnest money; $12,750 down payment – $6,375 earnest money = $6,375 needed.

139. b. The answer is $3,622.85. $9,410 total commission × 30% = $2,823 commission to listing broker; $9,410 – $2,823 listing broker commission = $6,587 remainder of commission. Sales associate's share of selling broker's commission is 55% (100% – 45%), and $6,587 × 55% = $3,622.85 commission sales associate receives.