1. Commission
2. Interest
3. Investment or Income
4. Profit and Loss
5. Depreciation & Appreciation
6. Taxes
7. Prorations
8. Ratio, Proportion & Scale
9. Area

COMMISSION

1. A 3 bedroom house sells for $124,000 and the broker's total commission is 6% of the selling price. The commission is

A. $6,000
B. $20,667
C. $7,440
D. $744

2. On a $78,000 sale of a house, the rate of commission is 6%. The salesperson gets 40% of the commission and the broker gets the remainder. How much does the broker get?

A. $40,000
B. $2,808
C. $1,872
D. $4,680

3. The commission on a house that sells for $96,000 is $4,800. What was the rate of commission?

A. 20%
B. 2%
C. 50%
D. 5%

4. A salesperson received $2,880 for selling a house. This was 40% of the total commission on the sale of a $120,000 house. What was the commission rate on the sale?

A. 6%
B. 12%
C. 4%
D. 3%

5. A house sells for $110,000 and the rate of commission was 6%. If the salesperson got $1,980 what percentage of the commission did the salesperson get?

A. 70%
B. 30%
C. 66%
D. 3%

6. A broker charges a rental management fee of one-third of the first month's rent, and 2% of each month's rent thereafter. He must pay a $100 "finders fee" to an agent. If the house rents for $600 per month, how much does the licensed broker make in one year?

A. $232
B. $432
C. $332
D. $100

7. A broker gets 6% of the first $100,000 and 3% of anything over $100,000. What would be the loss to the broker if a house listed for $180,000 has to be reduced by 20%?

A. $8,400
B. $7,320
C. $15,720
D. $1,080

8. Find the interest on $32,000 at 12 ¼ per annum (year) for 6 months.

A. $326
B. $1,320
C. $2,640
D. $1,960

9. If the interest on a loan at 13% per annum for 8 months was $5,400, what was the amount of the loan?

A. $72,900
B. $81,000
C. $62,300
D. $67,500

10. If the interest 9 months on a loan of $80,000 was $7,200, what was the rate of interest per annum?

A. 13.5%
B. 12%
C. 9.6%
D. 10.5%

11. A purchase-money mortgage carried back by seller for $60,000 at 10 ¾% was made February 1 and paid November 1. What was the total outstanding amount due at the time of payment?

A. $48,375.00
B. $55,162.50
C. $64,837.00
D. $66,450.00

12. A loan is made for 90% of the $96,000 appraised value of a house. The annual rate of interest is 12%. What is the bi-monthly (every 2 months) interest payment?

A. $864
B. $8,208
C. $684
D. $1,728

13. On a simple interest loan of $15,000 that has an interest rate of 13% per annum, what is the total interest payment for 2 years, 6 months and 10 days?

A. $3,033.33
B. $2,403.30
C. $2,433.30
D. $4,929.20

14. A woman receives a purchase-money $30,000 loan from the seller at a reduced rate of 9%. Assuming the loan interest is calculated on a declining balance, if her payment is $250 per month, including interest, what is her balance after 3 payments?

A. $29,975
B. $29,949.81
C. $29,924.43
D. $29,898.86

INVESTMENT OR INCOME

15. A property valued at $120,000 is earning an 8% return. What is the monthly return?

A. $9,600
B. $4,800
C. $800
D. $80

16. A property valued at $150,000 earns $750 per month. What is the annual percentage return?

A. 7.5%
B. 6%
C. 9%
D. 12%

17. A business shows a monthly profit of $1,050. If this is a 9% return, what is the value of the property?

A. $140,000
B. $94,500
C. $14,000
D. $9,450

18. A man owns a building with 6 apartments. Three of the apartments net him $200 each per month and the other 3 net him $150 each per month. For what amount should he sell the building to net the same profit if he invests the money at 9%?

A. $126,000
B. $105,000
C. $12,600
D. $140,000

19. A man rents each of his 5 apartments for $600 per month and has a total amount of expenses of $1,000 per month. He has an investment of $50,000 at 8% a year in the bank. He decides to use the bank interest to pay for better and more frequent property maintenance. What percent increase in rent per apartment must he obtain to offset this additional expense?

A. 33.33%
B. 66.67%
C. 11.11%
D. 20%

20. A store in a shopping center under a percentage lease pays a monthly rent of $600 plus 4% of the annual gross over $150,000. The gross yearly income was $250,000. If the lessor's interest in the store is valued at $150,000 what is the percentage return to the lessor?

A. 7.5%
B. 11.2%
C. 15%
D. 14%

21. A property is valued at $180,000 and is making an 8% annual net return on the investment. By what percentage must the monthly profit be increased to make a 10% annual return?

A. 15%
B. 20%
C. 30%
D. 25%

PROFIT & LOSS

22. What percentage profit is made on a sale, if the selling price is $90,000 and the purchase price is $75,000?

A. 15%
B. 20%
C. 120%
D. 12%

23. If the purchase price of a property was $50,000, what should the selling price be to realize a 5% profit?

A. $47,500
B. $53,750
C. $52,500
D. $51,500

24. A man buys a house for $50,000. He sells it for $60,000 with a 6% brokers fee and closing cost of $400. What was his percentage profit?

A. 11.2%
B. 1.12%
C. 5.6%
D. 12%

25. A house sells for $92,000, a 15% increase over the purchase price paid one year before. The seller paid the 9% interest on a 90% loan, taxes of $350, insurance of $150 and a 6% commission on the sale. What was the seller's return?

A. Gain of $500
B. Loss of $500
C. Gain of $250
D. Loss of $250

26. A house sells for $80,000. The seller pays 3 discount points to the lender on a 90% FHA loan and a 6% commission. If she bought the house for $50,000 five years ago, what was the annual rate of her profit?

A. 9%
B. 18%
C. 6%
D. 12%

27. A man buys a house for $50,000 and wants to realize an 8% profit after paying a 6% real estate commission. What should the selling price be?

A. $50,760
B. $53,191
C. $90,000
D. $57,446

28. A house originally cost $30,000 to build. Over the next three years, costs went up to 10% the first year, 20% the second and went down 3% of the next year. What would the construction cost of the same house be if building had been postponed three years?

A. $33,000
B. $39,600
C. $38,412
D. $25,608

DEPRECIATION AND APPRECIATION

29. A $90,000 house depreciates an average of 3% each year. What is the house's value after seven years?

A. $60,000
B. $61,100
C. $71,100
D. $81,100

30. A house depreciates 2 ½% per year for four years. If the house is now worth $108,000, what was it worth four years ago?

A. $106,930.69
B. $120,000
C. $118,800
D. $108,900

31. A house currently worth $153,000 was worth $180,000 five years ago. What was the depreciation per year?

A. 5%
B. 3%
C. 2%
D. 15%

32. A man has a $9,000 cottage that he depreciates using straight line depreciation for 10 years. What is the dollar amount of depreciation each year?

A. $1,000
B. $1,100
C. $900
D. $1,800

33. It cost $40,000 to build a house on a $20,000 lot six years ago. If the house depreciates at 3% per year and the lot appreciates at 5% per year, what is the total value now?

A. $32,800
B. $26,000
C. $6,800
D. $58,800

34. If a $30,000 house depreciates at 3% per year for five years under straight line depreciation, what is it worth now?

A. $15,000
B. $2,550
C. $25,500
D. $4,500

35. If 3% depreciation on a $30,000 house were computed each year on remaining value, what would it be worth after five years?

A. $28,227
B. $27,380
C. $26,558
D. $25,762

TAXES & INSURANCE

36. The tax assessment ratio for a house valued at $90,000 is 40%. If the tax rate is $3.50 per $1,000 what is the quarterly tax?

A. $31.50
B. $126.00
C. $63.00
D. $42.00

37. If a man's semi-annual tax on a $120,000 home is $243 and the tax rate is $6.75 per $1,000 of assessed value, what is the tax assessment ratio?

A. 6%
B. 60%
C. 40%
D. 4%

38. A woman's semi-annual tax on her $90,000 home is $78.75 and is based on a tax assessment ratio of 50%. What is the tax rate per $1,000 for her home?

A. $1.57
B. $3.50
C. $3.14
D. $35.00

39. A $120,000 home carries fire insurance on 80% of its value. If the rate is $3.50 per $1,000 of insured value for a three year policy, what is the annual premium?

A. $336
B. $168
C. $112
D. $224

40. A man pays $168.75 each year for fire and home insurance. The rate is $3 per $1,000 of insured value for a two year period. If his house is worth $150,000, what percent of that value is covered by insurance?

A. 75%
B. 7.5%
C. 85%
D. 25%

41. A property conveyed for $60,000. If the conveyance tax rate was $0.07 per $100 value, what was the conveyance tax paid by the seller?

A. $4.20
B. $42
C. $420
D. $4,200

42. A property conveyed for $110,000 was charged a conveyance tax of $38.50. What is the tax rate per $100?

A. 38.5 cents
B. 3.85 cents
C. 3.5 cents
D. $3.50

PRORATIONS

43. The taxes of $390 have been paid for the entire calendar year. The seller sells on October 1st. What is the amount of the remaining prepaid portion?

A. $32.50
B. $325
C. $97.50
D. $292.50

44. A house is sold May 1. On January 1 of that year the three year insurance was paid in an amount of $441 and the semi annual tax of $180 was paid. How much should be debited to buyer and credited to the seller?

A. $392
B. $452
C. $332
D. $422

45. The taxes on a house for the fiscal year 7/1 to 6/30 are $900 to be paid in advance. If the house is sold February 15, what is the amount of prepaid portion owed back to the seller?

A. $100
B. $56.25
C. $562.50
D. $337.50

46. A house sold March 15. The taxes for the first six months of the year are $195 and have not been paid. How much of this does the buyer pay?

A. $81.25
B. $113.75
C. $195
D. $32.50

47. The seller has made the October 1 payment on his mortgage 8 ¾% leaving a balance of $32,400. What is the amount of the accrued interest as of the closing on October 20?

A. $157.50
B. $236.25
C. $86.62
D. $83.40

48. N/A

49. On January 1 taxes of $600 are paid for the year and $120 is paid on the semi annual ground lease rent, both in advance. The house is sold April 10. How much is due to the seller?

A. $433.50
B. $486.90
C. $54.40
D. $380.10

50. If 200 ft. of fence costs $900, what would 350 ft. of fence cost?

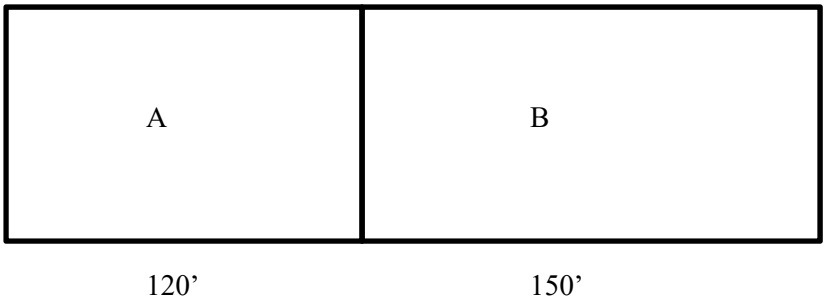
A. $1,575
B. $1,800
C. $3,150
D. $900

51. If a 9 by 12 ft. rug costs $1,500 what would a 14 by 16 ft. rug cost?

A. $2,240
B. $3,111.11
C. $1,080
D. $2,962.12

52. Lots A and B (see picture below) have the same depth. Lot A is ¼ acre. How many acres are in Lot B?

A. 31
B. 3.1
C. .31
D. .031



53. N/A

54. If a salesperson claims to sell three out of every five prospects, how many sales would result from 120 prospects?

A. 120
B. 36
C. 18
D. 72

55. In scale, if 2 in. represents a length of 6 ft., what would represent a length of 20 ft.?

A. 6 in.
B. 6-2/3 in.
C. 3-1/3 in.
D. 2-2/3 in.

AREA

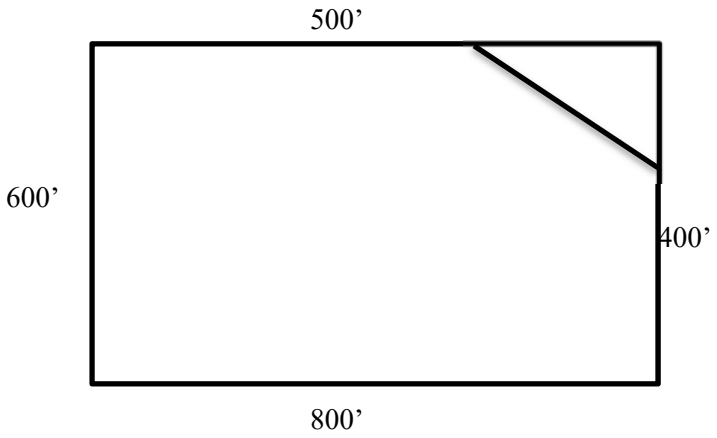
56. N/A

57. A lot is 70 by 120 ft. What fraction of an acre is this?

A. 1/4
B. 1/5
C. 1/2
D. 1/3

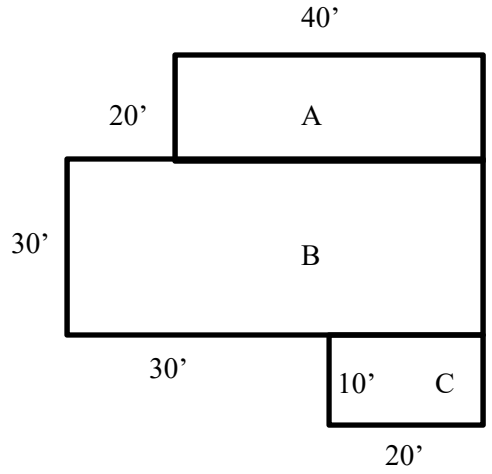
58. What is the cost of the lot in the following illustration if the cost is $2.50 per sq. ft.?

A. $4,500,000
B. $2,500,000
C. $1,125,000
D. $562,500



59. The house with the floor area shown below sells for $150,000. What is the cost per sq. ft.?

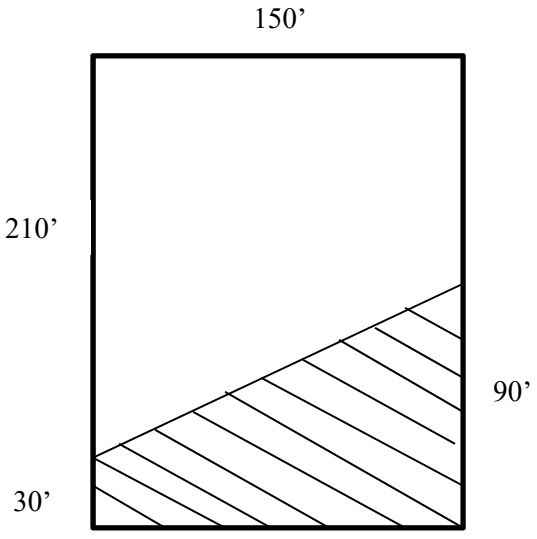
A. $250
B. $120
C. $60
D. $30



60. N/A

61. A man buys the lot shown below for $12,000. To make way for the freeway, the state condemns the shaded area. What would be the fair market value of the shaded portion, assuming a 10% increase in value?

A. $3,800
B. $3,150
C. $3,300
D. $3,762



62. A property is for sale at $120,000. If the cost of the land is $15,000 per acre and the lot is rectangular with a 500 ft. frontage, what is the height?

A. 696.9 ft.
B. 966.8 ft.
C. 869.6 ft.
D. 986.6 ft.

MISCELLANEOUS

63. The owner of an apartment house with eight apartments spends $1,000 on improvements. How much should she increase each rent to recoup this expense in six months?

A. $125
B. $20.83
C. $12.50
D. $38.20

64. A man buys a parcel of land for $1 million. He then subdivides it into eight lots to sell for $150,000 each. What percentage of return on the money is this?

A. 2%
B. 20%
C. 40%
D. 4%

65. A woman has six apartments that she rents for $500 per month including utilities. If the utilities average $450 total per month, what would be the rent without utilities?

A. $75
B. $425
C. $85
D. $415

66. A building with a net income of $10,000 was appraised at $100,000. What would be the value if the capitalization rate has decreased by one percentage point?

A. $100,000
B. $90,909
C. $111,111
D. $105,263

67. A salesperson is offered a straight salary of $2,000 per month or 40% of a 6% total commission. How much in monthly sales would make the two offers equal?

A. $83,333
B. $50,000
C. $124,600
D. $166,666

68. A salesperson gets $500 per month plus 40% of the 6 % commission on sales. If he wants to earn $1,200 this month, how much must his sales be?

A. $50,000
B. $29,167
C. $20,833
D. $100,000

69. A house appreciates each year by 10%. This is equivalent to what percent for five years?

A. 50%
B. 61%
C. 71%
D. 81%

70. Acme Savings and Loan Association suggests the buyer can buy a home valued at 3½ times his yearly income. What should his minimum weekly salary be to buy a home worth $120,000?

A. $596.34
B. $695.34
C. $659.34
D. $634.59

71. On a quarter-acre of land, approximately what percentage is occupied by a 2,500 sq. ft. house?

A. 43%
B. 34%
C. 23%
D. 32%

72. A ¼-acre plot costs $5 per square foot. A house that is 60’ by 40’ will cost $30 per square foot. What is the total cost?

A. $87,120
B. $126,450
C. $130,680
D. $174,240

73. The gross income on a property is $7,920. If this is a 6% return on cost, what is the cost?

A. $47,520
B. $74,448
C. $132,000
D. $83,952

74. On a 30-year mortgage in the sum of $110,000 at 11%, the monthly payment is $1,047.56. On the first payment, how much is applied to reduce the principal?

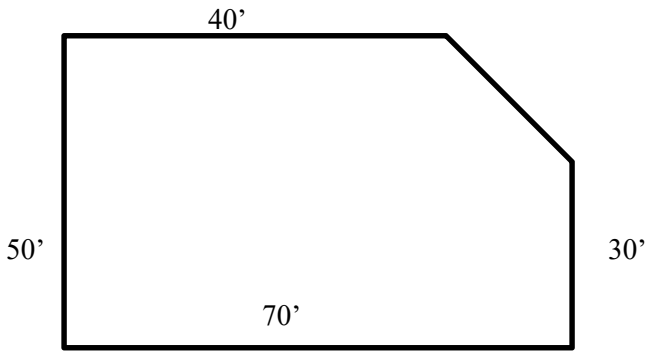
A. $1,008.33
B. $1,100
C. $39.23
D. $3.92

75. If the price of a house rises 10% the first year and 12% the second year, what is the percentage rise over the two years?

A. 22%
B. 13.2%
C. 120%
D. 23.2%

76. Find the cost of the lot below at $100 per square yard.

A. $35,556
B. $32,000
C. $106,667
D. $28,800



77. A 35 by 40 ft. house is on a 1/3-acre of land. What percentage is *not* taken up by the house?

A. 14%
B. 10%
C. 90%
D. 86%

78. A house originally cost $35,000 to build and the lot was $20,000. Lot prices have increased by 300% and building costs have doubled. What percent did the entire property appreciate?

A. 136%
B. 36%
C. 73%
D. 500%

79. A man owns a house with a $32,000 mortgage and his payment is $260 per month. He rents the house for $600 per month, paying 10% to a broker and saving $75 per month for repairs. The annual profit he makes is what percent of his equity if the house would net $68,000 if he were to sell?

A. 13%
B. 1.3%
C. 36%
D. 3.6%

80. A house worth $90,000 is rented for a net profit of $400 per month. How much money invested at 12% would give the same net profit?

A. $40,000
B. $80,000
C. $45,000
D. $90,000

81. The mortgage payment on a house is $336 per month. How much money would have to be invested at 12.5% per annum to pay the monthly mortgage payment?

A. $33,562
B. $33,600
C. $32,256
D. $25,326

82. The buildings on a 150 by 220 ft. lot cover 30% of the lot. How many square feet are not covered by buildings?

A. 33,000
B. 23,100
C. 10,900
D. 7,000

83. A buyer applies at a bank for a loan to purchase a $60,000 home. The bank requires an 18% down payment on the first $30,000 and a 14% down payment on the remaining $30,000. What will be the bank's loan fee if they charge 4 points on the balance?

A. $3,018
B. $2,400
C. $2,184
D. $2,016

84. George earns $22,500 per year as a carpenter, and his wife, Sally, is a secretary earning $15,000. They are selling their present home for $70,000 and will receive their equity of $35,000 at closing. They contact a lender who uses a 2.5-times rule of thumb. The most expensive home they would be capable of purchasing would be:

A. $89,750
B. $93,750
C. 75,000
D. $128,750

85. A buyer contracts to purchase a $75,000 home and puts up a good faith deposit of $1,500. The commission is 6.5 percent paid by seller. The buyer gets a $260 credit for real property taxes paid in arrears. If buyer obtains an 80 percent conventional loan at 12 percent interest with three points, how much should he bring to the closing?

A. $15,040
B. $19,915
C. $15,300
D. $16,540

REAL ESTATE MATHEMATICS ANSWERS

Commission

1. C Solution:

V	$124,000	V = value
R	x .06	R = rate
I	$7,440.00	I = Income

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2. B Solution:

V	$78,000	The commission is $4,680
R	x .06	Since the salesperson gets 40%,
I	$4,680.00	the broker gets 60%

$4,680.00 x .60 = $2,808.00

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3. D Solution:

V	$96,000	
R	x ?	$4,800.00/96,000 = .05 = 5%
I	$4,800.00	

---

4. A Solution:

First determine the total commission: $2,880 is 40% of what?
? x .40 = $2,880
2,880/.40 = 7,200

V	$120,000	
R	x ?	$7,200.00/120,000 = .06 = 6%
I	$7,200	

---

5. B Solution

First determine the total commission

V	$110,000	
R	x .06	$6,600 is total commission
I	$6,600.00	

Then the salesperson's commission was what percent of $6,600?
$6,600 x ? = $1,980 1,980/6,600=.30=20%

---

6. A Solution

1st month 600/3=200 $200 for the first month
Each month after $600*.02 =$12.00
For 11 months $12 x 11 = $132.00
The total commission is: $332.00
Less $100 "finder's fee": -100.00
$232.00

---

7. D Solution

NOTE: These types of multiple-step problems are more prevalent in the broker's exam than in the salesperson's exam.

Old commission

$100,000		$80,000	
x .06	plus	x .03	
$6,000.00		$2,400.00	

Total $6,000.00 + $2,400.00 = $8,400.00

New sales price

Old price $180,000	New price $180,000
x .20	-36,000
$36,000	$144,000

New commission

$100,000		$44,000	
x .06	+	x .03	
$6,000		$1,320	

Total $6,000 + $1,320 = $7,320

Difference

$8,400
-7,320
$1,080

Interest

8. D Solution:

V	32,000	
R	x .1225	3,920/12 = $326.67 per month
I	3,920.00	326.67 x 6 months = 1,960.02

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9. C Solution:

$5,400 for 8 months is $675 per month
5,400/8 = $675 and is $8,100 for the year
$675 x 12 = $8,100

Then

V	?	
R	x .13	
I	$8,100	8,100/.13= $62,307.69

---

10. B Solution:

The interest per month is $800 — 7,200/9=800
The interest per year is $9,600 — 800 x 12 = 9,600

Then

V	80,000	
R	x ?	
I	$9,600	9,600/80,000= .12 = 12%

---

11. A Solution:

V $60,000
R x .1075
I $6,450 total interest for the year

6,450/12 = 537.50 interest per month
$537.50 x 9 months = $4,837.50 total interest for 9 months

Balance $60,000 + 4,837.50 = $64,837.50

---

12. D Solution:

$96,000 x .90 = $86,400 = amount of loan
$86,400 x .12 = $10,368 = interest for the year
10,368/12 = 864 = interest per month
$864 x 2 months = $1,728

---

13. D Solution:

V $15,000
R x .13
I $1,950 interest per year

1,950/12 = $162.50 interest per month
162.50/30 = $5.42 interest per day

2 years:	2 x $1,950 =	$3,900
6 months:	6 x $162.50 =	975
10 days:	10 x $5.42 =	54.20
		$4,929.20

---

14. C Solution:

1st payment

V $30,000
R x .09
I $2,700 2,700/12 = $225

$250.00 payment
-225.00 interest
$25.00 to balance

$30,000 old balance
- 25 to balance
$29,975 new balance

2nd payment

V $29,975
R x .09
I $2,697.75 2,697.50/12 = $224.81

$250.00 payment
-224.81 interest
$25.19 to balance

$29,975 old balance
- 25.19 to balance
$29,949.81 new balance

3rd payment

V $29,949.81
R x .09
I $2,695.48 2,695.48/12 = $224.62

$250.00 payment
-224.62 interest
$25.38 to balance

$29,948.81 old balance
- 25.38 to balance
$29,924.43 new balance

Investment or Income

15. C Solution:

V $120,000
R x .08
I $9,600 profit per annum

9,600/12 = $800 per mo.

---

16. B Solution:

$750 monthly earnings x 12 = $9,000 yearly earnings

V $150,000
R x ?
I $9,000 9,000/150,000 = .06=6%

---

17. A Solution:

$1,050 profit per month x 12 = $12,600 profit per year

V ?
R x .09
I $12,600 12,600/.09 = $140,000

---

18. D Solution:

$200 x 3 = $600
$150 x 3 = $450
$600 + 450 = $1,050 per month
$1,050 x 12 = $12,600 per year

V ?
R x .09
I $12,600 12,600/.09 = $140,000

---

19. C Solution:

$50,000 x .08 = $4,000 yearly
$4,000/12 = $333.33
333.33/5= $66.67
Raise each rent $66.67

V $600
R x ?
I $66.67 66.67/600 = .11 = 11%

---

20. A Solution:

$600 x 12 = $7,200 Fixed rent
$250,000-150,000 = $100,000
$100,000 x .04 = $4,000
$7,200 + $4,000 = $11,200 yearly rent

V	$150,000	
R	x ?	
I	$11,200	11,200/150,000 = .074 = 7.5%

---

21. D Solution:

V	$180,000	
R	x .08	old rate
I	$14,400	yearly

14,400/12 = $1,200 monthly profit (old)
$180,000 x .10 new rate = $18,000 yearly
18,000/12 = $1,500 monthly profit (new)

$1,500 new monthly profit
-1,200 old monthly profit
$300 gain

V	1,200	
R	x ?	
I	300	300/1.200 = .25 = 25% increase

Profit and Loss

22. B Solution:

$90,000-75,000 = $15,000 profit
15,000/75,000 = .20 = 20%

V	$75,000	
R	x ?	
I	15,000	

Or $75,000 x ? = 90,000
90,000/75,000 = 1.20 =120% return

---

23. C Solution:

$50,000 x 1.05 = $52,500

---

24. D Solution:

$60,000
x .94
$56,400
- 400
$56,000

$50,000 x ? = $56,000 56,000/50,000 = 1.12 = 12% profit

---

25. B Solution:

? x 1.15 = $92,000 92,000/1.15 = 80,000 purchase price
$92,000-80,000 = $12,000 gross profit

Loan $80,000

Commission $92,000
x .06
$5,520

Total Expenses: Interest $6,480
Commission 5,520
Tax 350
Insurance 150
$12,500

Gross Profit $12,000
Expenses -12,500
-$500 loss

---

26. A Solution: $80,000 x .90 = $72,000 amount of loan
$72,000 x .03 = $2,160
Commission: $80,000 x .06 = $4,800 commission
Expenses: $2,160 x 4,800 = $6,960
Profit: $30,000 – 6,960 = $23,040 23,040/5 = $4,608 profit per year
$50,000 x ? = $4,608 4,608/50,000 = .09 = 9%

---

27. D Solution: $50,000 x .08 = $4,000 profit
$50,000 + $4,000 + .06SP = SP or $54,000 = .94 x SP
54,000/.94 = $57,446.81 selling price

---

28. C Solution: $30,000 x 1.10 = $33,000 after 1 year
$33,000 x 1.20 = $39,600 after 2 years
$39,600 x .97 = $38,412 after 3 years

Depreciation and Appreciation

29. C Solution: 3% x 7 years = 21%
100% - 21% = 79%
$90,000 x .79 = $71,100

---

30. B Solution: 2 ½% x 4 years = 10% 100%-10% = 90%
? x .90 = $108,000 108,000/.90 = $120,000

---

31. B Solution: $180,000 x ? = $153,000
153,000/180,000 = .85 = 85%
100% - 85% = 15% for the 5 years
15/5 = 3 = 3% depreciation per year

---

32. C Solution: 100% in 10 years = 10% each year
.10 x $9,000 = $900 per year

---

33. D Solution: House: $40,000 3% x 6 = 18%
x .82 100% - 18% = 82%
$32,800

Lot: $20,000 5% x 6 = 30%
x 1.30 100% + 30% = 130%
$26,000

Total: $32,800
+26,000
$58,800

---

34. C Solution:

3% x 5 = 15%
100% - 15% = 85%
$30,000 x .85 = $25,500

---

35. D Solution:

$30,000 x .97 = 29,100 after 1 year
$29,100 x .97 = 28,227 after 2 years
$28.227 x .97 = 27,380.19 after 3 years
$27,380.19 x .97 = 26,558.78 after 4 years
$26,558.78 x .97 = $25,762.02 after 5 years

Taxes and Insurance

36. A Solution:

market value	$90,000
x %	x .40
assessed value	$36,000

assessed value (in thousands)	36
x rate	x 3.50
tax bill	$126 annual tax

quarterly 126/4=$31.50

---

37. B Solution:

$243 x 2 = $486 per year of tax

Assessed value	?	
x rate	x 6.75	
tax	$486	486/6.75 = $72

assessed value is $72 x $1,000 = $72,000

market value	$120,000
x rate	?
assessed value	$72,000

72,000/120,000 = .60 = 60%

---

38. B Solution:

$78.75 x 2 = $157.50 tax per year

Market value	$90,000
x %	x .50
assessed value	$45,000

assessed value $45 (in thousands)

---

39. C Solution:

value	120,000
x %	x .80
insured value	$96,000

insured value	$96 (in thousands)
x rate	x 3.50
premium	$336 (for 3 years)

336/3 = $112 per year

---

40. A Solution:

$168.75 x 2 = $337.50 for the 2 years

Insured value	?
x rate	x 3.00
premium	$337.50

337.50/3 = $112.50 insured value (in thousands)

market value	$150,000
x %	?
insured value	$112,500

112,500/150,000 = .75 = 75%

---

41. B Solution:

value	$600 (in hundreds)
x rate	x .07
tax	$42

---

42. C Solution:

value	$1,100 (in hundreds)
x rate	x ?
tax	$38.50

38.50/1,100 = .035 = 3.5 c

Prorations

43. C Solution:

(a) time period: 3 months (Oct., Nov., Dec.)
(b) $390 per year/12 = $32.50 per month
(c) $32.50 x 3 = $97.50

---

44. B Solution:

Insurance: $441/36 months = $12.25 per mo.
$12.25 x 32 mos. Remaining = $392

Taxes: $180/6 = $30 per month taxes
$30 x 2 months remaining = $60

Total $392 + 60 = $452

---

45. D Solution:

$900/12 mos. = $75 per month
$75 x 4.5 mos. = $337.50

---

46. B Solution:

$195/6 = $32.50 per month
Buyer pays for 3 ½ months $32.50 x 3.5 = $113.75

---

47. A Solution:

V $32,400
R x .0875
I 2,835

2,835/12 = $236.25 for the month
236.25/30 = $7.88 per day

The seller owes for 20 days $7.88 x 20 = $157.50

---

48. D Solution:

$426 + 36 months = $11.83 per month
$11.83 x 20 ½ months remaining = $242.52 due the seller

---

49. B Solution:

Taxes: $600/12 = $50 per month
8-2/3 months remain $50 x 8.67 = $433.50
Lease rent: $120/6 = $20 per month
2-2/3 months remain $20 x 2.67 = $53.40
Total: $433.50/$53.40 = $486.90

Ratio, Proportion and Scale

50. A Solution:

$\frac{200}{900} = \frac{350}{?}$

900 x 350 = 200 x ?
315,000/200 = $1,575

---

51. B Solution:

9 x 12 = 108 sq. ft. 14 x 16 = 224 sq. ft.

Proportion: $\frac{108}{\$1,500} = \frac{224}{?}$ $\frac{\text{area}}{\text{cost}}$ $1,500 x 224 = 108 x ?

$1,500 x 224 = $336,000 $336,000/108 = $3,111.11

52.

$\frac{120}{.25} = \frac{150}{?}$

150 x .25 = 37.50 37.50/120 = .31 acre

---

53. D Solution: NOTE: This is an inverse proportion (as number of men goes up, hours go down)

$\frac{10}{?} = \frac{15}{8}$

8 x 10 = 80 (This is number of "man-hours")
80/15 = 5.33 hours

---

54. D Solution:

$\frac{3}{5} = \frac{?}{120}$ 3 x 120 = 360 360/5 = 72

---

55. B Solution: $\frac{2}{6} = \frac{?}{20}$ 2 x 20 = 40 40/6 = 6-2/3”

---

56. C Solution: Scale ½” = 5’ would be 1” = 10’

So $\frac{1}{10} = \frac{6\ ½}{?}$ 10 x 6 ½ = 65 ft.

$\frac{1}{10} = \frac{3}{?}$ 3 x 10 = 30 ft.

So the yard is 65 ft. by 30 ft. = 1,950 square feet
Changing to square yards: There are 9 square feet to a square yard

$\frac{9}{1} = \frac{1{,}950}{?}$ 1,950/9 = 216-2/3 square yards

Each square yard costs $15 to 216-2/3 square yards cost 216-2/3 x 15 = $3,250

Area

57. B Solution: 70 ft. x 120 ft. = 8,400 square feet

$\frac{1 \text{ acre}}{43{,}560 \text{ sq. ft.}}$ x 8,400 sq. ft. = ? acres

8,400/43,560 = .193 (almost 1/3 acre)

---

58. C Solution:
area = rectangle – triangle
= 600 x 800 – ½ (300 x 200)
= 480,000 – 30,000
= 450,000
cost = no. of sq. ft. x cost per sq. ft.
= 450,000 x $2.50
= $1,125,000

---

59. C Solution:
area A = 40 x 20 = 800
B = 50 x 30 = 1,500
C = 10 x 20 = 200
Total area= 2,500 sq. ft.

Cost per sq. ft. = 150,000/2,500 = $60

---

60. A Solution: (a) Finding volume in cubic feet

V = 70’ x 10’ x .25’ (3 in. = 3/12 = .25 ft.)
V = 175 cu. ft.

(b) Converting to cubic yards, 1 cu. yards, 1 cu. yd. = 3' x 3' x 3' = 27 cu. ft.

$$\frac{?}{175} = \frac{1}{27}$$

? = 175/27 = 6.48 cu. yd.

(c) at $30 per cu. yd. the cost will be:
6.48 x $30 = $194.40

---

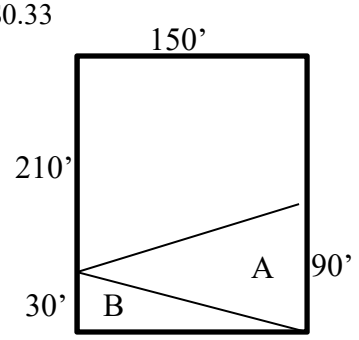
61. C Solution: (a) area of rectangle = 240 x 150 = 36,000 sq. ft.

(b) value of rectangle per sq. ft. $12,000/31,500 = $0.33

(c) divide shaded area into 2 triangles
A = ½ (90 x 150) = 6,750
B = ½ (30 x 15) = 2,250
6,750 + 2,250 = 9,000 sq. ft.

(d) value = 9,000 x $.33 = $3,000

(e) with added 10% = $3,000 x 1.1 = $3,300



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62. A Solution: (a) no. of acres = total cost/cost per acre
= $120,000/$15,000 per acre
= 8 acres

(b) 1 acre = 43,560 sq. ft.
8 acres = 348,480 sq. ft.

(c) Area = base x height
348,480 = 500 x h
h = 696.9 ft.

Miscellaneous

63. B Solution: $1,000 shared by 8 apartments = $1,000/8 = $125 each
in 6 equal payments = $125/6 = $20.83

---

64. B Solution: 8 x $150,000 = $1,200,000
- 1,000,000
$200,000 increase

$$\frac{200,000}{1,000,000} = .20 = 20\%$$

---

65. B Solution: $450 shared among 6 apartments = $75 per apartment
Without utilities the rent would be $500 - $75 = $425

---

66. C Solution: $10,000/$100,000 equals the capitalization rate of 10%
$10,000/9% is $111,111

---

67. A Solution: 40% of 6% = .40 x .06 = .0240

Sales	?	
R	x.025	
I	$2,000	2000/.024 = $83,333.33

68. B Solution: $700 commission; 40% x 6% = .024

Sales	?	
R	x.024	
I	$700	700/.024 = $29,166.67

69. B Solution: P(1.1) x (1.1) x (1.1) x (1.1) x (1.1) = P(1.61) = 61%

70. C Solution: $120,000/3 ½ = $34,285.71 per year
34,285.71/52 = $659.34 per week

71. C Solution: 1 acre = 43,560 sq. ft.
¼ acre = 10,890 sq. ft.
2,500/10,890 = .229 =23%

72. B Solution: ¼ acre = ¼ x 43,560 sq. ft. = 10,890 sq. ft.
10,890 x $5 = $54,450
60’ x 40’ = 2,400
2,400 x $30 = 72,000
54,450 + 72,000 = $126,450

73. C Solution:

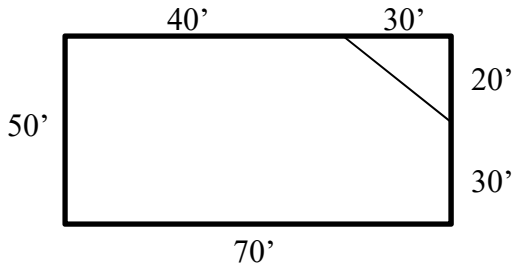
?	
x .06	
$7,920	7,920/.06 = $132,000

74. C Solution: $110,000 x .11 = $12,100/12= $1,008.33

$1,047.56 – 1,008.33 = $39.23

75. D Solution: first year: 100 + (.10 x 100) = 110
Second year: 110 + (.12 x 110) = 123.2
123.2 = 100 + (.232 x 100)

76. A Solution: Area = 70 x 50 – ½ (20 x 30)
= 3,500 – 300 = 3,200 sq. ft.
3,200 sq. ft./9 sq. ft./sq. yd. = 355.56 sq. yd.
355.56 x 100 = $35,556



77. C Solution: 1/3 acre = 14,520 sq. ft. 35' x 40' = 1,400 sq. ft.
1,400 + 14,520 = .096 = 10%
Therefore: 90% not house

---

78. A Solution:

House	$35,000 x 2 =	$70,000
Lot	20,000 x 300%=	60,000
	$55,000	$130,000
		-55,000
	Appreciation	$75,000

$75,000/$55,000 = 1.36 = 136%

---

79. D Solution:

$600
-260 mortgage
340
-60 to broker
280
-75 repair
$205

$205/$68,000 = .0030147 x 12 = .03617 or 3.6%

---

80. A Solution: $400 x 12 = $4,800/yr 4,800/.12 = $40,000

---

81. C Solution: $336 x 12 = $4,032/yr 4,032/.125 = $32,256

---

82. B Solution: 150' x 220' = 33,000 70% of 33,000 = 23,100 sq. ft.

---

83. D Solution: 30,000 x 18% = 5,400 5,400 + 4,200 = 9,600
30,000 x 14% = 4,200 60,000 – 9,600 = 50,400 x .04 = $2,016

---

84. D Solution: $37,500 x 2.5 = $93,750 is the amount of loan they would qualify for
Adding this to their $35,000 equity would mean they could purchase a $128,750 home

---

85. A Solution: $1,500 deposit + 260 credit = $1,760

$75,000
x 80%
60,000
x 3%
$1,800 points

$75,000
x 20%
15,000 down payment
-1,760
13,240
+1,800
$15,040