



CLIMER SCHOOL OF REAL ESTATE

10 REAL ESTATE MATH QUESTIONS TEST 1 ANSWER KEY

1. A parcel contains 38 acres. 20 percent of the land must be set aside for common areas and parks. Another 500 feet by 30 feet is marked for streets. Each lot will be at least 9,000 square feet. How many lots can the developer create to sell?

A.

$$38 \times 43,560 \text{ ft/acre} = 1,655,280 \text{ sq ft.}$$

$$20\% = .20$$

$$1,655,280 \text{ sq ft} \times .20 = 331,056 \text{ sq ft that can't be used.}$$

$$1,655,280 \text{ sq ft} - 331,056 \text{ sq ft} = 1,324,224 \text{ sq ft that can be used.}$$

$$500 \text{ ft} \times 30 \text{ ft} = 15,000 \text{ sq ft of street that can't be used.}$$

$$1,324,224 \text{ sq ft} - 15,000 \text{ sq ft} = 1,309,224 \text{ sq ft that can be used for the lots.}$$

$$1,309,224 \text{ sq ft usable area divided by } 9,000 \text{ sq ft per lot} = 145.47 \text{ or } \underline{\mathbf{145 \text{ lots!}}}$$

2. A developer is going to build a 4 story building that will house storage bins. Each floor will be 400 feet by 600 feet. 20 percent of each floor must be set aside for elevators and hallways. Each storage bin is 10 feet by 20 feet. How many storage bins can the developer create to rent?

B.

$$\text{Each floor} = 400 \text{ ft} \times 600 \text{ ft} = 240,000 \text{ sq ft.}$$

$$240,000 \text{ sq ft per floor} \times 4 \text{ floors} = 960,000 \text{ total sq ft.}$$

$$20\% = .20$$

$$960,000 \text{ sq ft} \times .20 = 192,000 \text{ sq ft that can't be used.}$$

$$960,000 \text{ sq ft} - 192,000 \text{ sq ft} = 768,000 \text{ sq ft that can be used for bins.}$$

$$\text{Each bin is } 10 \text{ ft} \times 20 \text{ ft} = 200 \text{ sq ft.}$$

$$768,000 \text{ sq ft usable area divided by } 200 \text{ sq ft per bin} = \underline{\mathbf{3,840 \text{ total bins!}}}$$

3. The real estate taxes on a house are \$3560 per year. The closing date is April 21st. The 'Day of Closing' belongs to the buyer. What is the prorated tax amount and how is it reflected on the closing statement?

C.

$$\$3,560/\text{Yr divided by } 365 \text{ days} = \$9.75/\text{day in real estate taxes}$$

The seller owes the buyer the real estate taxes from January 1st to April 20th.

Jan has 31 days, Feb has 28, Mar has 31. The seller owes 20 days in April since the buyer is responsible for April 21st.

$$31 + 28 + 31 + 20 = 110 \text{ days}$$

$$110 \text{ days} \times \$9.75/\text{day} = \underline{\mathbf{\$1,072.50 \text{ in real estate taxes shown as a credit to the buyer and a debit to the seller on the closing statement.}}}$$



4. A buyer is purchasing a home for \$200,000. She applies for an 80% LTV conventional loan to purchase the home. Her bank is going to charge her 3 discount points. How much money will she pay her bank at closing for this loan?

A.

$SP = \$200,000 \times .80 \text{ (LTV)} = \$160,000 \text{ Loan Amount}$

$3 \text{ pts} = 3\% \text{ of the loan amount} = .03$

$\$160,000 \times .03 = \underline{\$4,800 \text{ at closing}}$

5.

A loan is for \$150,000. The rate is 5% with 3 discount points. What is the yield on this loan?

D.

$5\% + 3 / 8 = \underline{5 \text{ and } 3/8\text{ths Per Cent yield}}$

6. A business owner negotiates a percentage lease for his business. His base monthly rent is \$3,000 per month. When annual gross sales exceed \$1,000,000 per year, he agrees to pay an extra 3% of all annual gross sales over this amount. His annual gross sales are \$2,000,000 this year. What is his total annual rent?

D.

Base rent = \$3,000 per month x 12 months = \$36,000 per year. **KEEP YOUR UNITS THE SAME!**

$\$2,000,000 - \$1,000,000 = \$1,000,000$ over and above the annual sales threshold

$\$1,000,000 \times .03 \text{ (3\%)} = \$30,000$ rent overage based on annual gross sales

$\$36,000 \text{ base rent} + \$30,000 \text{ rent overage} = \underline{\$66,000 \text{ total annual rent}}$

7. A business owner negotiates a variable lease for his business. He begins his lease at \$2,000 per month and the index is 175. One year later the index has increase to 185. What is his new monthly rent?

A.

$\$2,000 \text{ divided by } 175 = 11.43$

$11.43 \times 185 = \underline{\$2,114}$

8. An FHA buyer is requesting a \$1,500 monthly total housing expense payment. Their total obligations are \$2,000 per month. Their total gross monthly income is \$5,000 per month. What are the HER and the TOR?

C.

$HER = HE \text{ divided by Total Monthly Income} = \$1,500 \text{ divided by } \$5,000 = .30 = \underline{30\% \text{ HER}}$

$TOR = TO \text{ divided by Total Monthly Income} = \$2,000 \text{ divided by } \$5,000 = .40 = \underline{40\% \text{ TOR}}$

9. An investor is looking at a property. The monthly rent is \$1,000. The annual income is \$12,000. The asking price is \$130,000. What are the GRM and the GIM?

D.



GRM = Sales Price divided by the Monthly Rent = \$130,000 divided by \$1,000 = **130**

GIM = Sales Price divided by the Annual Income = \$130,000 divided by \$12,000 = **10.83**

10. A house has 3,000 square feet of living area and 200 square feet of garage space. The lot is 150 feet by 110 feet. The cost to build the living area is \$80 per square foot and the garage area is \$25 per square foot. The lot cost is \$5 per square foot. The economic life of the house is 50 years and the effective age is 10 years. What is the value based on the cost-depreciation approach?

A.

3,000 sq ft x \$80/sq ft = \$240,000

200 sq ft x \$25/ sq ft = \$5,000

\$240,000 + \$5,000 = \$245,000 to build and replace.

The house has used 10 of its 50 years' of economic life so it has 40 of its years left.

40 remaining years divided by 50 total years = .80 or 80% remaining economic life.

\$245,000 x .80 = \$196,000 depreciated value.

The lot is 150 ft x 110 ft x \$5/sq ft = \$82,500 Never depreciate the land!

\$196,000 depreciated improvements value + \$82,500 land value = **\$278,500 value**