

NAME: __00__

Practice Quiz - Test 1 Part B Preview

Similar Problems with Different Numbers

Practice Quiz (28 Questions)

Question 1 (1 point)

Convert 273°K to degrees Celsius.

- A) 546.15
- B) 0
- C) -0.15
- D) 546

$$\begin{aligned} C &= K - 273.15 \\ C &= 273 - 273.15 \\ C &= -0.15 \end{aligned}$$

Question 2 (1 point)

In 2010, a major corporation donated $\$2,800,000,000$ to charitable causes. Assuming you could give $\$15.00$ per day, 365 days per year; how many years would it take you to donate this amount?

- A) 5.1×10^4 years
- B) 2.9×10^5 years
- C) 5.1×10^5 years
- D) 2.9×10^6 years

$$\frac{\$15}{\text{day}} \cdot \frac{365 \text{ days}}{\text{year}} = \frac{5475.00}{\text{year}}$$

$$\text{years} = \frac{\text{Total donation}}{\text{Annual donation}} = \frac{2,800,000,000}{5475.00/\text{year}}$$
$$\text{years} \approx 511,413.525$$

$$5.1 \times 10^5 \text{ years}$$

Question 3 (1 point)

Suppose your original salary was increased by 3% one year and then 6% the next year. What was the relative change in your salary at the end of the two years?

- A) 9%
 - B) 9.18%
 - C) 3%
 - D) 6%
- $1 + 0.03 = 1.03$ $1.03 \times 1.06 = 1.0918$
 $1 + 0.06 = 1.06$
 $1.0918 - 1 = 0.0918$
 $0.0918 \times 100\% = 9.18\%$

Question 4 (1 point)

Suppose you want your daughter's college fund to contain \$125,000 after 18 years. If you can get an APR of 4.2%, compounded monthly, how much should you deposit at the end of each month?

- A) \$412.50
 - B) \$521.38
 - C) \$8,942.15
 - D) \$495.75
- $FV: \$125,000$
 $APR: 4.2\% \text{ or } 0.042$
 $n: 12 \text{ (monthly)}$
 $t: 18$
 $i = \frac{r}{n} = \frac{0.042}{12} = 0.0035$
 $n = n \times t = 12 \times 18 = 216$
 $PV = PMT \times \frac{(1+i)^n - 1}{i}$
 $\frac{125000 \times 0.0035}{(1+0.0035)^{216} - 1} = \frac{437.5}{2.15828 - 1} = \frac{437.5}{1.15828}$
 $PMT \approx 377.72$

Question 5 (1 point)

A savings account earns 3.8%, compounded continuously. How much would you need to deposit now in order to have a balance of \$50,000 after 5 years? Assume that no additional deposits are to be made.

- A) \$39,856.42
 - B) \$62,748.35
 - C) \$2,156.70
 - D) \$45,320.18
- $FV: 50,000$ $APR: 3.8$ $t = 5$ $PV: ?$
 $PV = \frac{FV}{e^{(rt)}}$ $PV = \frac{50000}{e^{(0.038 \times 5)}}$
 $PV = \frac{50000}{e^{0.19}}$

Question 6 (1 point)

$PV \approx \frac{50000}{1.20909}$
 $PV \approx 41353.79$

Which of the following describes a statistical graph where each category is represented as a portion of a circle?

- A) Bar chart
- B) Pie chart
- C) Scatter plot
- D) Line graph

Question 7 (1 point)

Calculate the monthly payments for a home mortgage of \$225,000 with a fixed APR of 6.25% for 20 years.

- A) \$1,425.50
- B) \$1,582.75
- C) \$1,795.42
- D) \$1,652.38

$$M = P \frac{r(1+r)^n}{(1+r)^n - 1}$$

$$P = 225,000$$

$$r = \frac{6.25\%}{12} = \frac{0.0625}{12} \approx 0.0052083$$

$$n = 20 \times 12 = 240$$

$$(1+r)^n = (1+0.0052083)^{240} \approx 3.5358$$

$$r(1+r)^n \approx 0.0052083 \times 3.5358 \approx 0.018413$$

$$(1+r)^n - 1 \approx 3.5358 - 1 \approx 2.5358$$

$$M = \frac{225000 \times 0.018413}{2.5358} \approx 1633.95$$

Question 8 (1 point)

Which of the following describes a statistical graph that displays data using rectangular bars?

- A) Pie chart
- B) Bar graph
- C) Line chart
- D) Scatter plot

Question 9 (1 point)

Four years after buying 300 shares of a certain stock for \$28 per share, you sell the stock for \$12,500. Find the annual return (to the nearest hundredth of a percent) on your investment.

- A) -2.14%
- B) 5.36%
- C) -8.42%
- D) -5.12%

$$300 \times 28 = \$8400$$

$$AR = \left(\frac{\text{ending value}}{\text{beginning value}} \right)^{\frac{1}{n}} - 1, n \text{ is \# of years}$$

$$AR = \left(\frac{12500}{8400} \right)^{\frac{1}{4}} - 1$$

$$AR \approx (1.488095)^{0.25} - 1$$

$$AR \approx 1.1042 - 1$$

$$AR \approx 0.1042$$

$AR \approx 10.42\%$

Question 10 (1 point)

Convert 12 hours to seconds.

- A) 720
- B) 0.5
- C) 43,200
- D) 7,200

$$12 \text{ hr} \times 60 \text{ min} = 720 \text{ min}$$

$$720 \text{ min} \times 60 \text{ s} = 43200 \text{ s}$$

$\underline{\underline{43,200}}$

Question 11 (1 point)

Suppose you apply for an 8-year loan in the amount of \$28,500 with an APR of 6.5% and your monthly payment is \$380.50. Determine the total amount of interest paid over the eight years.

- A) \$8,952.00
- B) \$6,243.00
- C) \$7,852.50
- D) \$5,236.00

$$\text{total pay} = 8 \text{ y} \times 12 \text{ p} = 96 \text{ pay}$$

$$96 \times 380.50 = 36528$$

$$\text{total interest} = \text{total pay} - \text{loan}$$

$$\$36528 - \$28500 = \$8028$$

$\underline{\underline{\$8028}}$

Question 12 (1 point)

Which of the following describes qualitative data?

- A) The height of students in a class
- B) The favorite colors chosen by survey respondents
- C) The test scores of employees
- D) The ages of employees

Question 13 (1 point)

Suppose you own 250 shares of a major technology company. Last year, the company paid out dividends of \$0.85 per share. What total dividend payment might you expect this year?

- A) \$212.50
- B) \$237.50
- C) \$225.00
- D) \$250.85

$$250 \text{ shares} \times \$0.85/\text{share} = \$212.50$$

$$= \$212.50$$

Question 14 (1 point)

Your automobile insurance semiannual premium is \$600 and you have an \$800 deductible per incident. In a particularly bad year, you had two collisions. The total repair costs were \$2,200 and \$1,100. What was your out-of-pocket expense?

- A) \$2,000
- B) \$3,100
- C) \$1,600
- D) \$2,200

$$\text{Expense}_1 = 800$$

$$\text{Expense}_2 = 800$$

$$\text{Total Expense} = \text{Expense}_1 + \text{Expense}_2 =$$

$$800 + 800 = 1,600$$

$$\$1,600$$

Question 15 (1 point)

Calculate the yield on a \$1,000 T-bond with a coupon rate of 3.125% that has a market value of \$985.

A) 3.15%

B) 3.17%

C) 3.27%

D) 3.12%

$$C = \$1000 \times 0.03125 = \$31.25$$

$$\text{current } y = \frac{C}{\text{market}} = \frac{\$31.25}{\$985} \approx 0.0317258$$

3.17%

Question 16 (1 point)

Suppose that you have just obtained a 30-year home mortgage in the amount of \$120,000 at an APR of 8.2%. By finding the required monthly payment and also the monthly payment that you would need to make in order to pay off the loan in 15 years, determine the amount that you would save in interest charges by paying off the loan in 15 years.

A) \$58,500.00

B) \$67,200.50

C) \$72,840.75

D) \$81,925.80

$$r = \frac{0.082}{12} \approx 0.006833 \quad \text{PMT} = \frac{P \cdot r \cdot (1+r)^n}{(1+r)^n - 1}$$

$$\text{PMT}_{30} = \frac{\$120000 \cdot r \cdot (1+r)^{360}}{(1+r)^{360} - 1} \approx 848.53$$

$$\text{total}_{30} = (848.53 \times 360) - 120000 = 203470.80$$

$$\text{PMT}_{15} = \frac{120000 \cdot r \cdot (1+r)^{180}}{(1+r)^{180} - 1} \approx 1130.32$$

$$= 1130.32 \times 180 - 120000 \approx 87057.60$$

\$72,840.75

Question 17 (1 point)

Which of the following describes a statistical graph that uses symbols or pictures to represent data values?

A) Histogram

B) Pictograph

C) Frequency polygon

D) Box plot

Question 18 (1 point)

Marcus enjoys his tea. He spends \$6.25 per day at the tea shop each weekday. He brews his own on the weekends and spends \$35 a month on loose leaf tea. How much is Marcus spending annually on tea?

- A) \$812.50
- B) \$795.00
- C) \$2,945
- D) \$1,625

$$6.25 \times 5 \times 52 = 1,625$$

$$35 \times 12 = 420$$

$$1,625 + 420$$

$$= \$2,045$$

Question 19 (1 point)

Suppose that you invest \$350 in an account that earns interest at an APR of 5.5%, compounded quarterly. Determine the accumulated balance after 12 years.

- A) \$678.42
- B) \$715.85
- C) \$692.50
- D) \$721.35

$$A = P \left(1 + \frac{r}{n}\right)^{nt} \quad P: 350$$

$$A = 350 \left(1 + \frac{0.055}{4}\right)^{4 \times 12} \quad r: 5.5$$

$$\frac{0.055}{4} = 0.01375 \quad n = 4$$

$$t = 12$$

$$A = 350 (1.01375)^{48}$$

$$A \approx 350 \times 1.979428$$

$$A \approx \$692.80$$

Question 20 (1 point)

Calculate $(4.2 \times 10^4) + (5.8 \times 10^4)$

- A) 1.0×10^1
- B) 100
- C) 1.0×10^2
- D) 1.0×10^4

$$5.8 \times 10^{-1} = 0.058 \times 10^1$$

$$(4.2 \times 10^1) + (0.058 \times 10^1) = (4.2 + 0.058) \times 10^1$$

$$4.2 + 0.058 = 4.258$$

$$4.258 \times 10^1$$

Question 21 (1 point)

Which of the following describes a statistical graph that shows the relationship between two variables using points?

- A) Histogram
- B) Scatter plot
- C) Box plot
- D) Line graph

Question 22 (1 point)

What is the cost of operating a 600-watt home appliance for 8 hours, if electricity costs 7.2¢ per kilowatt-hour?

- A) \$34.56
- B) \$42.12
- C) \$28.80
- D) \$51.84

$$600w = 0.6kw$$

$$0.6kw$$

$$8h = 4.8kwh$$

$$4.8kwh \times 7.2c/kwh$$

$$34.56 = 0.3456$$

$$\boxed{\$34.56}$$

Question 23 (1 point)

An acre is equal to 43,560 square feet, and there are 5,280 feet in a mile. If a farm has the shape of a rectangle measuring 0.5 mile by 2 miles, what is the area of the farm in acres?

- A) 46.3 acres
- B) 232.0 acres
- C) 515.7 acres
- D) 75.8 acres

$$0.5 \times 2 \text{ mi} = 1 \text{ square miles}$$

$$1 \text{ square mi} \times (5280 \text{ feet/mile})^2$$

$$= 27,878,400$$

$$27,878,400$$

$$43,560$$

$$\boxed{= 640 \text{ acres}}$$

Question 24 (1 point)

Compare the length of a month (4 weeks) to the length of a year (52 weeks).

- A) A month is 92% less than a year
- B) A month is 8% more than a year
- C) A month is 50% of a year
- D) A month is 12% of a year

$$\frac{4 \text{ weeks}}{52 \text{ weeks}} \times 100\% =$$

$$7.69 \quad 8\%$$

$$12\%$$

Question 25 (1 point)

Suppose you have a balance of \$6,800 on your credit card, which charges an APR of 2.1%. If you want to pay off the balance in 24 months, how much should you pay each month? Assume that you charge no additional expenses to the card.

- A) \$283.33
- B) \$312.50
- C) \$325.42
- D) \$338.75

$$\$283.33$$

Question 26 (1 point)

Suppose you take out an auto loan for \$22,500 over a period of 6 years at an APR of 7.8%. To the nearest \$100, determine the total amount of your payments over the term of the loan.

- A) \$26,800
- B) \$27,100
- C) \$27,400
- D) \$26,500

$$\frac{\$368.06}{72 \text{ months}}$$

$$72 \text{ months}$$

$$\$368.06 \times 72$$

$$= \$26,500$$

Question 27 (1 point)

You have collected data from multiple sources including interviews, surveys, and documents that would best be understood with a combination of text, statistics, and visual representations. Which of the following is a common method of presenting this comprehensive research?

- A) Heat map
- B) Infographic
- C) Gantt chart
- D) Sankey diagram

Question 28 (1 point)

If you take 2,500 steps to walk one mile, how many miles can you walk in 500 million steps?

- A) 2×10^5 miles
- B) 2×10^6 miles
- C) 2×10^4 miles
- D) 2×10^7 miles

$$\begin{array}{r} 50000000 \\ \hline 2500 \\ = 200,000 \end{array}$$

$$200,000 = 2 \times 100,000 \times 10^3$$

2×10^5 miles

End of Quiz • Good luck!