

Math Questions 1–28: Full Questions, Correct Answers & Work

Q1) Convert 273 K to Celsius.

Correct Answer: -0.15°C

Work:

$$C = K - 273.15$$

$$273 - 273.15 = -0.15^{\circ}\text{C}$$

Q2) If \$15 is donated daily, how long to reach \$2,800,000,000?

Correct Answer: 5.1×10^5 years

Work:

$$15 \times 365 = 5,475 \text{ per year}$$

$$2,800,000,000 \div 5,475 \approx 511,415 \approx 5.1 \times 10^5$$

Q3) A 3% raise followed by 6% raise equals what total increase?

Correct Answer: 9.18%

Work:

$$1.03 \times 1.06 = 1.0918$$

$$1.0918 - 1 = 0.0918 = 9.18\%$$

Q4) Monthly payment to reach \$125,000 in 18 years at 4.2% APR?

Correct Answer: \$495.75

Work:

$$r = 0.042/12 = 0.0035$$

$$n = 216$$

$$\text{PMT} = 125000[(r)/((1+r)^n - 1)] \approx 495.75$$

Q5) Initial deposit to reach \$50,000 in 5 years at 3.8% continuous?

Correct Answer: \$39,856.42

Work:

$$A = Pe^{(rt)}$$

$$50000 = Pe^{(0.19)}$$

$$P = 50000/e^{0.19} \approx 39,856.42$$

Q6) Graph showing parts of a whole?

Correct Answer: Pie Chart

Q7) Monthly payment on \$250,000 at 6.25% for 20 years?

Correct Answer: \$1,652.38

Work:

$$r = 0.0625/12$$

$$n = 240$$

Mortgage formula gives $\approx 1,652.38$

Q8) Graph using rectangular bars?

Correct Answer: Bar Graph

Q9) \$8,400 grows to \$12,500 in 4 years. Rate?

Correct Answer: 5.36%

Work:

$$12500/8400 = 1.4881$$

$$(1+r)^4 = 1.4881$$
$$r \approx 5.36\%$$

Q10) Seconds in 12 hours?

Correct Answer: 43,200

Work:

$$12 \times 60 \times 60 = 43,200$$

Q11) Total interest on loan payments?

Correct Answer: \$8,952

Work:

$$\text{Total paid} - \text{principal} = \text{interest} \approx 8,952$$

Q12) Favorite colors data type?

Correct Answer: Qualitative

Q13) 15% discount on \$250?

Correct Answer: \$212.50

Work:

$$250 \times 0.85 = 212.50$$

Q14) Two \$800 deductibles?

Correct Answer: \$1,600

Work:

$$800 + 800 = 1,600$$

Q15) Yield if \$31.25 on \$985?

Correct Answer: 3.17%

Work:

$$31.25 / 985 = 0.0317 = 3.17\%$$

Q16) Savings by paying off early?

Correct Answer: \$72,840.75

Q17) Graph using pictures?

Correct Answer: Pictograph

Q18) Annual spending calculation?

Correct Answer: \$2,045

Work:

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

$$35 \times 12 = 420$$

$$\text{Total} = 2,045$$

Q19) \$350 invested at 5.5% quarterly for 12 years?

Correct Answer: \$715.85

Work:

$$A = 350(1 + 0.055/4)^{48} \approx 715.85$$

Q20) $(4.2 \times 10^4) + (5.8 \times 10^4)$?

Correct Answer: 1.0×10^5

Work:

$$(4.2 + 5.8) \times 10^4 = 10 \times 10^4 = 1.0 \times 10^5$$

Q21) Graph showing relationship of plotted points?

Correct Answer: Scatter Plot

Q22) Cost of 600W for 8 hours at \$0.072/kWh?

Correct Answer: \$0.35

Work:

$$0.6\text{kW} \times 8 = 4.8\text{kWh}$$

$$4.8 \times 0.072 = 0.3456 \approx 0.35$$

Q23) Acres in 1 square mile?

Correct Answer: 640 acres

Work:

$$5280^2 = 27,878,400 \text{ sq ft}$$

$$\div 43,560 \approx 640$$

Q24) 4 weeks as % of year?

Correct Answer: 8%

Work:

$$4/52 = 0.0769 \approx 8\%$$

Q25) Monthly payment on \$7,500 at 2.1% for 24 months?

Correct Answer: \$325.42

Q26) Total paid on \$22,500 at 7.8% for 6 years?

Correct Answer: \$26,800

Q27) Graphic combining visuals & statistics?

Correct Answer: Infographic

Q28) $500,000,000 \div 2,500$?

Correct Answer: 2×10^5 miles

Work:

$$= 200,000 = 2 \times 10^5$$