

Unit 6 Test Review - ANSWERS

Name: _____

Date: _____

- 1) Alex makes \$65,400 per year and wants to budget 23% of his salary toward his monthly housing payments. Find this monthly payment.

$$\begin{aligned} \$65,400 \times 0.23 &= \$15,042 \leftarrow \text{this is the yearly amount} \\ \$15,042 \div 12 &= \mathbf{\$1,253.50 \text{ is the monthly amount}} \end{aligned}$$

- 2) Neal makes \$17.50 per hour and works 38 hours a week. He pays 20% of his gross earnings in federal and state taxes and saves 11% of his monthly gross income. He is considering renting an apartment that will cost \$1100 per month. Based on his expenses, can he make the monthly payments?

$$\begin{aligned} \$17.50 \times 38 &= \$665 \text{ per week} & \$2660 - 532 - 292.60 &= \$1,835.40 \text{ brought home} \\ \$665 \times 4 &= \$2,660 \text{ per month} \\ .20 \times \$2,660 &= \$532 \text{ for taxes} & \mathbf{\text{So yes, he will have enough to pay the rent.}} \\ .11 \times \$2,660 &= \$292.60 \text{ saved} \end{aligned}$$

- 3) The length of a room is 23 ft. When using a $\frac{1}{4}$ inch = 1 foot scale, what would be the length of the wall on its floor plan?

$$\frac{0.25 \text{ inches}}{1 \text{ foot}} = \frac{x \text{ inches}}{23 \text{ feet}} \quad \text{cross multiply to get } \mathbf{5.75 \text{ inches}}$$

- 4) The conference room at Portland's Condo Complex measures 46ft x 35ft.

- a) New flooring is being installed and costs \$2.15 per square foot. Use the area formula given below to determine the total cost.

$$\begin{aligned} \boxed{\text{Area} = \text{length} \times \text{width}} & \quad \text{Area} = 46 \times 35 \\ & \quad \text{Area} = 1,610 \text{ ft}^2 \\ & \quad \text{Cost} = 1,610 \times \$2.15 = \mathbf{\$3461.50} \end{aligned}$$

- b) Find the volume of the conference room if it has 10 foot ceilings.

$$\begin{aligned} \boxed{\text{Volume} = \text{length} \times \text{width} \times \text{height}} & \quad \text{Volume} = 46 \times 35 \times 10 \\ & \quad \mathbf{\text{Volume} = 16,100 \text{ ft}^3} \end{aligned}$$

Consumer Math
Unit 6 - Adulting

- 5) Michael is making garden in his backyard in the shape of a regular hexagon. He wants to make it so the length of each side is 6 feet and the apothem length is 8 feet. Use the area formula below to determine the area of the garden.

$$\text{Area} = 0.5 \times \text{apothem} \times \text{length of each side} \times \text{number of sides}$$

$$\begin{aligned}\text{Area} &= 0.5 \times 8 \times 6 \times 6 \\ \text{Area} &= 144 \text{ ft}^2\end{aligned}$$

- 6) The main conference room at a town building measures 50 feet by 31 feet and has an 11-foot ceiling. It is fairly well insulated (level 9) and faces the south side of the building. Use the formula given below to determine the correct size of the air conditioner that should be purchased for the room.

$$\text{BTU rating} \approx \frac{w \cdot h \cdot i \cdot l \cdot e}{60}$$

w: width of room

h: height of room

i: level of insulation

l: length of room

e: exposure

north: 16 east: 17

south: 18 west: 20

$$\text{BTU} \approx \frac{50 \times 11 \times 9 \times 31 \times 18}{60}$$

$$\text{BTU} \approx \frac{2,762,100}{60}$$

$$\text{BTU} \approx 46,035$$

Consumer Math
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7) Jacie wants to re-tile the bathroom and kitchen of her apartment whose floor plan is shown below.

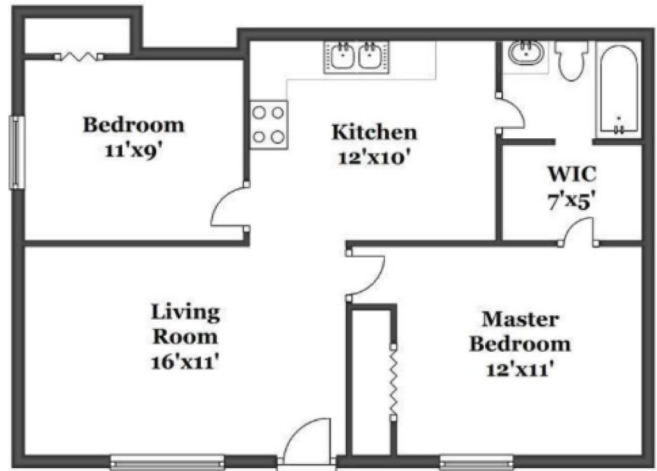
- a) What is the total amount of tile she will need?

$$\text{Area} = \text{length} \times \text{width}$$

$$\text{Bathroom} = 7 \times 5 = 35 \text{ ft}^2$$

$$\text{Kitchen} = 12 \times 10 = 120 \text{ ft}^2$$

$$\text{Total} = 35 + 120 = \mathbf{155 \text{ ft}^2}$$



- b) The tile she wants costs \$1.10 per square foot. How much will it cost her to re-tile these two rooms?

$$\mathbf{\$1.10 \times 155 = \$170.50}$$

Consumer Math
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8) Matt and Melissa are buying a \$340,000 home and made an 13% down payment.

a) How much money did they borrow for their loan?

$$\$340,000 \times 0.13 = \$44,200 \text{ <- this is their down payment}$$

$$\$340,000 - 44,200 = \mathbf{\$295,800 \text{ <- this is their loan amount}}$$

b) They have been approved for a 5.5% APR mortgage. What will be their annual interest?

$$\$295,800 \times 0.055 = \mathbf{\$16,269}$$

c) What will be their daily interest?

$$\$16,269 \div 365 = \mathbf{\$44.57}$$

d) If they made their down payment on May 17th, how much will be charged in prepaid interest at the closing?

$$31 - 17 = 14 \text{ days to pre-pay}$$

$$14 \times \$44.57 = \mathbf{\$623.98}$$

e) If closing costs are usually between 2% and 7% of the original cost of the home, what might Matt and Melissa expect to pay in total at the closing?

$$0.02 \times \$340,000 = \$6,800$$

$$0.07 \times \$340,000 = \$23,800$$

They can expect to pay between \$6,800 and \$23,800 for closing costs.

Consumer Math
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9) Last year, John paid a monthly condo maintenance fee of \$230. Twelve percent of this fee covered his monthly property taxes.

a) What is his monthly property tax for the condo?

$$\$230 \times 0.12 = \$27.60$$

b) How much did John pay last year in property taxes on his condo?

$$\$27.60 \times 12 = \$331.20$$

10) Vanessa is 40 years old and plans to open a retirement account. She wants to have \$500,000 in the account when she retires at age 67. Use the formula below to determine how much must she deposit each month into an account with an APR of 2.5% to reach her goal.

$$P = \frac{B \left(\frac{r}{n}\right)}{\left(1 + \frac{r}{n}\right)^{nt} - 1}$$

B = balance at end of investment period

P = periodic deposit amount

r = annual interest rate (as a decimal)

n = number of times interest is compounded annually

t = length of investment in years

$$t = 67 - 40 = 27$$

$$P = \frac{500,000 \left(\frac{0.025}{12}\right)}{\left(1 + \frac{0.025}{12}\right)^{12 \times 27} - 1}$$

$$P = \frac{1041.67}{0.963}$$

$$P = 1081.69$$

Consumer Math
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11) Dominick makes \$65,000 per year. The company allows employees to make contributions to the 401k to a maximum of 12% of their salary. The maximum allowable contribution to any 401k for his company is \$5,500.

a) What is 12% of Dom's salary?

$$\$65,000 \times 0.12 = \mathbf{\$7,800}$$

b) Using your answer from part a, what is the maximum amount that Dom is allowed to contribute to his 401k?

Since the max allowed by the company is \$5,500, he is only allowed to contribute the **\$5,500** even though 12% of his salary is more.

12) Aubrey wants to check how many Social Security credits she received for 2017. She finds that to earn a credit in 2017, she needed to earn \$1,300. She worked part-time all year and earned \$315 per month.

a) How much money did she earn for the whole year?

$$\$315 \times 12 = \mathbf{\$3,780}$$

b) How many credits did she earn that year?

$$3,780 \div 1,300 = 2.91$$

She earned 2 credits that year.

13) Bryan has a universal life insurance policy with a face value of \$210,000. The current cash value of the policy is \$8,700. If the premium is \$75 per month, for how many months can the cash value be used to pay the premium?

$$\$8,700 \div \$75 = \mathbf{116 \text{ months}}$$