

MAT 0020 Basic Algebra II

KEY CONCEPT REVIEW

CHAPTER 2, SECTIONS 2.4 – 2.7

TO RECEIVE CREDIT, DO ALL PROBLEMS, MAKE CORRECTIONS, AND SHOW ALL WORK.

Translate and solve.

- 1) Three times the sum of a number and three is seven less than five times the same number.
- 2) When the first and third of three consecutive odd integers are added, the result is 87 less than five times the second integer. Find the third integer.

A) 27	B) 59
C) 29	D) 31

Solve each problem.

- 3) A 26-inch board is cut into two pieces. The larger piece is 8 inches more than twice smaller piece. Find the length of each piece.
- 4) The base angles of an isosceles triangle have the same measure. If the measure of the third angle is 39° less than the measure of either of the base angles, find the measure of one of the base angles.

A) 53°	B) 73°
C) 34°	D) 109.5°
- 5) There are 20 fewer juniors than sophomores in an 8 AM algebra class. If the class has 94 students, how many students are sophomores? How many students are juniors?
- 6) Jose's long distance phone service charges a \$15 basic fee plus \$0.05 per minute for all calls. If his phone bill was \$54, how many minutes of calls did he make?

Substitute the given values into the formula and solve for the unknown variable.

- 7) $I = prt$; $I = 100.8$, $p = 160$, $r = 0.07$
- 8) $A = \frac{1}{2}(b+B)h$; $A = 60$, $b = 13$, $B = 11$

A) 5	B) 143
C) 12	D) 48

Solve the formula for the specified variable.

- 9) $A = \frac{1}{2}bh$ for h
- 10) $4x - 7y = 10$ for y .
- 11) $A = P + PRT$ for R

A) $R = \frac{A - P}{PT}$	B) $R = \frac{A}{T}$
C) $R = \frac{P - A}{PT}$	D) $R = \frac{PT}{A - P}$

Use the given formula to solve the problem.

- 12) A local pizzeria offers one 18-inch cheese pizza for \$10.75. Its competitor offers two 12-inch cheese pizzas for the same price. Which is the better offer? (Use the formula $A = \pi r^2$, with $\pi = 3.14$.)



Use the given formula to solve the problem.

- 13) Ted drove 456 miles to his parents' house for a holiday weekend. If the trip took 6 hours, how fast was he driving? (Use the distance formula: $d = rt$.)

Solve each problem.

- 14) 22 is 5% of what number?
- 15) An automobile dealership reduced the price of a used sports car by 22%. If the price of the car was \$44,100, find the amount of the discount.
- 16) A company increased the number of its employees from 400 to 450. What was the percent increase in employees?
- 17) On Monday, an investor bought 100 shares of stock. On Tuesday, the value of the shares increased by 2%. How much did the investor pay for the shares of stock if he sold them Wednesday for \$1,479?
- A) \$1449 B) \$1450
C) \$1500 D) \$1429
- 18) How does the solution of an inequality differ from the solution of an equation?
- 19) How do the graphs of $x > 4$ and $x \geq 4$ differ? Explain.

Solve the inequality and graph its solution.

20) $0 > \frac{y}{4}$



21) $-3x - 4 \leq -4x - 2$



Solve each inequality.

22) $-4(6y - 10) < -28y + 12$

- A) $\{y \mid y > -7\}$ B) $\{y \mid y < -7\}$
C) $\{y \mid y > 7\}$ D) $\{y \mid y < 7\}$

23) $\frac{1}{3}(x - 5) > \frac{1}{2}(x - 2)$

24) $8x + 2 - 8x \geq 2 - 2x + 2$

- A) $\{x \mid x \geq -1\}$ B) $\{x \mid x \leq -1\}$
C) $\{x \mid x \geq 1\}$ D) $\{x \mid x \leq 1\}$

25) $-2(x - 4) - 3x < -(4x + 1) + 2x$

- 26) Find the mistake in the calculations shown.

$$\begin{aligned} 5(x - 2) &\leq 3(2x - 1) \\ 5x - 10 &\leq 6x - 3 \\ -10 &\leq 6x - 5x - 3 \\ -10 + 3 &\leq x \\ -7 &\geq x \\ x &\leq -7 \end{aligned}$$

Solve each problem.

- 27) Nine more than four times a number is less than negative fifteen. Find all numbers that make this statement true.
- A) $x > -6$ B) $x > -51/4$
C) $x < -6$ D) $x < -51/4$
- 28) The perimeter of a rectangle must be no more than 56 feet. If the width is 7 feet, what is the minimum length of the rectangle?
- 29) If Sara makes a long distance call from a campus pay phone, the first three minutes will cost \$2.10. After that, each additional minute or portion of a minute will cost \$0.50. Find the maximum number of minutes she can spend on the call if her phone card has a balance of \$9.10?