MAT 1033C -- Martin-Gay
Intermediate Algebra
Chapter 2 Take Home Quiz (2.1 – 2.7)
Summer 2019

Name_____
Date _____
Day/Time: _____

You ***MUST*** show your work to receive any credit. This Exam is worth 100 points. Each problem is worth 4 points.

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Solve the equation.

1) $10x - 18 = 4x + 6$ 1) _____

A) –1 B) –4 C) 1 D) 4

2) $-[8x + (2x + 6)] = 1 - (8x + 8)$ 2) _____

A) $-\frac{1}{2}$ B) $-\frac{3}{2}$ C) $\frac{3}{2}$ D) $\frac{1}{2}$

3) $12(x + 2) = 6(2x - 1) + 30$ 3) _____

A) 2 B) 0
C) all real numbers D) ∅

4) $\frac{11x}{14} + \frac{5}{7} = \frac{5x}{7}$ 4) _____

A) 20 B) –20 C) 10 D) –10

5) $\frac{2x-1}{6}+x=\frac{2x+1}{2}+4$ 5) _____

A) $-\frac{8}{3}$ B) 14 C) 6 D) – 13

6) $|2x+8|+7=16$ 6) _____

A) $-\frac{1}{2},\frac{17}{2}$ B) $\frac{1}{8},-\frac{17}{8}$ C) $\frac{1}{2},-\frac{17}{2}$ D) ∅

7) $|2x+4|+9=4$ 7) _____

A) $\frac{1}{4},-\frac{9}{4}$ B) $\frac{1}{2},-\frac{9}{2}$ C) $-\frac{1}{2},\frac{9}{2}$ D) ∅

8) $|6x+4|=|-7+8x|$ 8) _____

A) ∅ B) $\frac{11}{2}$ C) $\frac{11}{2},-\frac{3}{14}$ D) $\frac{11}{2},\frac{3}{14}$

9) $|x+2|=|9-x|$ 9) _____

A) $\frac{7}{2}$ B) ∅ C) $-\frac{2}{7}$ D) 7

Solve the equation for the specified variable.

10) $5x - 6y = 7$ for y 10) _____

A) $y = \frac{5x - 7}{6}$ B) $y = 5x - 7$ C) $y = \frac{5x + 7}{6}$ D) $y = \frac{7 - 5x}{6}$

11) $F = xy^2 + xzy$ for x 11) _____

A) $x = \frac{F}{y^3 z}$ B) $x = F - x - zy$ C) $x = \frac{y^2 + zy}{F}$ D) $x = \frac{F}{y^2 + zy}$

12) $S = 2\pi rh + 2\pi r^2$ for h 12) _____

A) $h = \frac{S - 2\pi r^2}{2\pi r}$ B) $h = \frac{S}{2\pi r} - 1$ C) $h = S - r$ D) $h = 2\pi(S - r)$

Solve the inequality. Write your solution in interval notation.

13) $4(5x + 1) + 33 \le 14x + 1$ 13) _____

A) $(-\infty, -6)$ B) $(-\infty, -6]$ C) $(6, \infty)$ D) $[6, \infty)$

14) $\frac{3x + 4}{14} - \frac{1 + 3x}{7} \le -\frac{1}{2}$ 14) _____

A) $\left(3, \infty\right)$ B) $\left[3, \infty\right)$ C) $\left[-3, \infty\right)$ D) $(-\infty, 3]$

15) $-1 \le 3(x-2) < 4$ 15) _____

A) $\left(\frac{1}{3}, 2\right]$ B) $\left[\frac{5}{3}, \frac{10}{3}\right)$ C) $\left(\frac{5}{3}, \frac{10}{3}\right]$ D) $\left[\frac{1}{3}, 2\right)$

16) $|7k+1| \ge 3$ 16) _____

A) $\left[\frac{2}{7}, \infty\right)$ B) $\left[-\frac{4}{7}, \frac{2}{7}\right]$

C) $(-\infty, -\frac{4}{7}] \cup [\frac{2}{7}, \infty)$ D) $\left(-\frac{4}{7}, \frac{2}{7}\right)$

17) $|x+3|+1 \le 8$ 17) _____

A) $[-10, 8]$ B) $[-10, 4]$ C) $(-10, 4)$ D) $\varnothing$

18) $x \le 1$ and $x \le -1$ 18) _____

A) $(-\infty, -1]$ B) $[-1, \infty)$ C) $(-\infty, -1] \cup [1, \infty)$ D) $[-1, 1]$

19) $x < 2$ or $x < 9$ 19) _____

A) $(2, \infty)$ B) $(2, 9)$ C) $(-\infty, 2) \cup (9, \infty)$ D) $(-\infty, 9)$

20) $0 \le \frac{3x+1}{2} < 3$ 20) _____

A) $\left(-\frac{1}{3}, \frac{5}{3}\right]$ B) $\left[-\frac{1}{3}, \frac{5}{3}\right]$ C) $\left(-\frac{1}{3}, \frac{5}{3}\right)$ D) $\left[-\frac{1}{3}, \frac{5}{3}\right)$

21) $-6x + 1 \ge 13$ or $3x + 3 \ge -9$ 21) _____

A) $(-\infty, \infty)$ B) $[-4, -2]$ C) $[-2, \infty)$ D) $[-4, \infty)$

Solve the problem.

22) The population of a town increased by 60% in 5 years. If the population is currently 50,000, find the population of this town 5 years ago. (Round to the nearest whole number, if necessary.) 22) _____

A) 20,000 B) 83,333 C) 31,250 D) 30,000

23) The cost C to produce x number of tennis rackets is $C = 180 + 21x$. The tennis rackets are sold wholesale for $26 each, so revenue R is given by $R = 26x$. Find how many tennis rackets the manufacturer needs to produce and sell to break even. 23) _____

A) 31 tennis rackets B) 36 tennis rackets

C) 41 tennis rackets D) 18 tennis rackets

24) A principal of $12,000 is invested in an account paying an annual interest rate of 7%. Use the formula $A = P\left(1 + \frac{r}{n}\right)^{nt}$ to find the amount in the account after 4 years if the account is compounded quarterly. 24) _____

A) $15,839.15 B) $15,729.55 C) $15,566.73 D) $3839.15

25) The three most prominent buildings in a city, Washington Center, Lincoln Galleria, and Jefferson Square Tower, have a total height of 1800 feet. Find the height of each building if Jefferson Square Tower is three times as tall as Lincoln Galleria and Washington Center is 250 feet taller than Lincoln Galleria. 25) _____

A) Washington Center: 480 feet
Lincoln Galleria: 160 feet
Jefferson Square Tower: 1160 feet

B) Washington Center: 560 feet
Lincoln Galleria: 310 feet
Jefferson Square Tower: 930 feet

C) Washington Center: 410 feet
Lincoln Galleria: 160 feet
Jefferson Square Tower: 1230 feet

D) Washington Center: 660 feet
Lincoln Galleria: 220 feet
Jefferson Square Tower: 920 feet