

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

- 1) The results of an analysis, on the makeup of garbage, done by the Environmental Protection Agency was published in 1990. Some of the results are given in the following table, which for various years gives the number of pounds per person per day of various types of waste materials. 1) _____

Waste materials	1960	1970	1980	1988
Glass	.20	.34	.36	.28
Plastics	.01	.08	.19	.32
Metals	.32	.38	.35	.34
Paper	.91	1.19	1.32	1.60

For paper, calculate the average rates of change between consecutive data points in the table. Interpret meaning of your results.

- A) The rate of increase stays the same from the 1960's through the 1980's.
 B) The rate of increase increases during the 1970's ; but then decreases during the 1980's.
 C) The rate of increase slows down during the 1960's ; but then increases during the 1970's and 1980's.
 D) The rate of increase slows down during the 1970's ; but then increases during the 1980's.
- 2) The following information pertains to a bakery which makes donuts. 2) _____

# of cases of donuts	10	20	30	40	50	60	70	80	90
Profit (in dollars)	868	1790	1990	3950	3500	5590	5220	6320	8100

Make a scatterplot of the data. Then graph the following two functions on the same coordinate system: $f_1(x) = -x^2 + 100x$; $f_2(x) = 85x$. Decide which function best models the data, and then use that function to estimate the profit associated with making 45 cases of donuts.

- A) f_2 ; profit for 45 cases is \$4500. B) f_1 ; profit for 45 cases is \$2475.
 C) f_1 ; profit for 45 cases is \$3675. D) f_2 ; profit for 45 cases is \$3825.

Write a mathematical expression for the quantity described verbally.

- 3) The revenue when each item sells for \$10,000. 3) _____
 A) $10,000 - x$ B) $10,000x$ C) $10,000 + x$ D) $x - 10,000$
- 4) The profit consists of a franchise fee of \$100,000 plus 18% of all sales 4) _____
 A) $\$100,000 - 0.18$ B) $(0.18x + 100,000)$
 C) $18x + 100,000$ D) $0.18 + 100,000x$

Solve the inequality.

5) $\frac{5x-1}{7} < -2$ 5) _____

A) $x < -\frac{13}{5}$

B) $x > -\frac{13}{5}$

C) $x \leq -\frac{13}{5}$

D) $x \geq -\frac{13}{5}$

6) $1 > \frac{4z+1}{7} > -1$ 6) _____

A) $-\frac{3}{2} < z < 2$

B) $\frac{3}{2} < z < 2$

C) $-2 < z < -\frac{3}{2}$

D) $-2 < z < \frac{3}{2}$

Find the slope of the line through the pair of points.

7) $(-5, 6)$ and $(-3, -3)$ 7) _____

A) $-\frac{2}{9}$

B) $-\frac{9}{2}$

C) $\frac{9}{2}$

D) $-\frac{3}{8}$

Find the value of x or y so that the line through the pair of points has the given slope.

8) $(x, 2)$ and $(3, 10)$; $m = 4$ 8) _____

A) -2

B) 1

C) 2

D) 3

9) $(-1, 2)$ and $(4, y)$; $m = -2$ 9) _____

A) -9

B) 11

C) -8

D) 9

Find a slope-intercept form equation for the line.

10) Through $(3, 3)$, with slope $-\frac{2}{5}$ 10) _____

A) $y = -\frac{2}{5}x + \frac{6}{5}$

B) $y = \frac{2}{5}x - \frac{21}{5}$

C) $y = \frac{2}{5}x + \frac{6}{5}$

D) $y = -\frac{2}{5}x + \frac{21}{5}$

11) Through the points $(3, 5)$ and $(-3, 9)$ 11) _____

A) $y = -\frac{2}{3}x + 7$

B) $y = -\frac{2}{3}x + \frac{7}{2}$

C) $y = -\frac{4}{3}x + 7$

D) $y = -\frac{2}{3}x - 7$

Determine the equation of the line described. Put answer in the slope-intercept form, if possible.

12) Through $(5, -3)$, perpendicular to $-8x - 5y = -25$ 12) _____

A) $y = \frac{5}{8}x$

B) $y = \frac{5}{8}x - \frac{49}{8}$

C) $y = \frac{8}{5}x - 49$

D) $y = -\frac{5}{8}x + \frac{49}{8}$

13) Through $(3, -3)$ parallel to $-8x + 5y = 6$ 13) _____

A) $y = -\frac{3}{5}x + \frac{6}{5}$

B) $y = \frac{5}{8}x + \frac{3}{8}$

C) $y = \frac{8}{5}x - \frac{39}{5}$

D) $y = -\frac{8}{5}x + \frac{39}{5}$

Provide an appropriate response.

14) In the linear function, $y = 4 - 21x$, 4 is the ? of the function. 14) _____

A) rise over run

B) first degree term

C) slope

D) y-intercept

- 15) If the y -intercept of the linear function $y = b + 5x$ lies below the x -axis, then what can you say about b ? 15) _____
- A) $b = 0$ B) $b > 0$ C) $b \geq 0$ D) $b < 0$

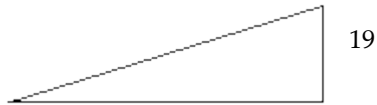
Solve the problem.

- 16) Assume that the sales of a certain appliance dealer are approximated by a linear function. Suppose that sales were \$7500 in 1982 and \$71,500 in 1987. Let $x = 0$ represent 1982. Find the equation giving yearly sales $S(x)$. 16) _____
- A) $S(x) = 64,000x + 7500$ B) $S(x) = 12,800x + 7500$
C) $S(x) = 12,800x + 71,500$ D) $S(x) = 64,000x + 71,500$

- 17) Employees of a publishing company received an increase in salary of 5% plus a bonus of \$1200. Find the total annual pay after the increase for an initial salary of \$1200. 17) _____
- A) \$16,000 B) \$28,200 C) \$20,100 D) \$19,200

- 18) Assume that the sales of a certain appliance dealer are approximated by a linear function. Suppose that sales were \$14,500 in 1982 and \$54,500 in 1987. Let $x = 0$ represent 1982. Find the equation giving yearly sales $S(x)$. 18) _____
- A) $S(x) = 40,000x + 14,500$ B) $S(x) = 8000x + 54,500$
C) $S(x) = 40,000x + 54,500$ D) $S(x) = 8000x + 14,500$

- 19) A motorcycle daredevil is planning a stunt to perform at a county fair. A ramp must be built to give him a 20% grade, or slope. If the vertical height at the end of the ramp must be 19 ft to assure that the stunt is a success, what must be the length of the horizontal run? 19) _____



- A) 15 ft B) 3.42 ft C) 342 ft D) 95 ft

Answer Key

Testname: MATH-1010 UNIT 2 TEST WEAK AREAS

- 1) D
- 2) D
- 3) B
- 4) B
- 5) A
- 6) D
- 7) B
- 8) B
- 9) C
- 10) D
- 11) A
- 12) B
- 13) C
- 14) D
- 15) D
- 16) B
- 17) C
- 18) D
- 19) D