MA109 — College Algebra Spring 2019
Exam 1 2019-02-06

Name: _____ **Sec.:** _____

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The exam consists of multiple choice questions. Record your answers on this page. For each multiple choice question, you will need to fill in the circle corresponding to the correct answer. For example, if (a) is correct, you must write

(a) b c d e

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GOOD LUCK!

1.	a	b	c	d	e	**11.**	a	b	c	d	e
2.	a	b	c	d	e	**12.**	a	b	c	d	e
3.	a	b	c	d	e	**13.**	a	b	c	d	e
4.	a	b	c	d	e	**14.**	a	b	c	d	e
5.	a	b	c	d	e	**15.**	a	b	c	d	e
6.	a	b	c	d	e	**16.**	a	b	c	d	e
7.	a	b	c	d	e	**17.**	a	b	c	d	e
8.	a	b	c	d	e	**18.**	a	b	c	d	e
9.	a	b	c	d	e	**19.**	a	b	c	d	e
10.	a	b	c	d	e	**20.**	a	b	c	d	e

For grading use:

Number Correct	
	(out of 20 problems)

Total	
	(out of 100 points)

Name: _____

Multiple Choice Questions

Show all your work on the page where the question appears.
Clearly mark your answer both on the cover page on this exam
and in the corresponding questions that follow.

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1. The point $(7, 11)$ is on the graph of which of these equations?

   Possibilities:

   (a) $(y + x)^2 = (11)^2 + (7)^2$

   (b) $y = 2x - 3$

   (c) $11y = 7x$

   (d) $y = 7x + 11$

   (e) $y + 11 = 2(x + 7)$

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2. A line has slope 13 and goes through the point $(9, 2)$. What is its y-intercept?

   Possibilities:

   (a) -117

   (b) -7

   (c) -115

   (d) 2

   (e) 115

---

3. Let

$$p(x) = \begin{cases} 11x & \text{if } x < 7 \\ 2x + 1 & \text{if } x \geq 7 \end{cases}$$

   Find $p\,(7)$

   Possibilities:

   (a) 7

   (b) $2x + 1$

   (c) 92

   (d) 15

   (e) 77

---

4. Find an equation for the line through $(5, 9)$ and $(7, 2)$.

Possibilities:

(a) $y - 9 = -\frac{5}{4}(x - 5)$

(b) $y = \frac{11}{12}x + 9$

(c) $y - 2 = -\frac{7}{2}(x - 7)$

(d) $y - 9 = -\frac{5}{4}(x - 7)$

(e) $y - 2 = -\frac{7}{2}(x - 5)$

5. Find the average rate of change between $x = -8$ and $x = -3$ of $f(x) = \dfrac{7}{x + 9}$

Possibilities:

(a) $-\frac{7}{6}$

(b) $\frac{35}{6}$

(c) 6

(d) 5

(e) $-\frac{49}{66}$

6. Let $f(x) = 7x + 9$. Compute $\dfrac{f(w) - f(x)}{w - x}$

Possibilities:

(a) $7x - 7w + 9$

(b) 7

(c) $7 + h$

(d) 1

(e) $\dfrac{7(w - x) + 18}{w - x}$

7. Let $f(x) = x^2 + 7$. Compute $\dfrac{f(x + h) - f(x)}{h}$

Possibilities:

(a) $\dfrac{h^2 + 14}{h}$

(b) $2x + 7 + h$

(c) $7x + h$

(d) $\dfrac{7 + h}{h}$

(e) $2x + h$

8. What is the domain of the function in the graph?

Possibilities:

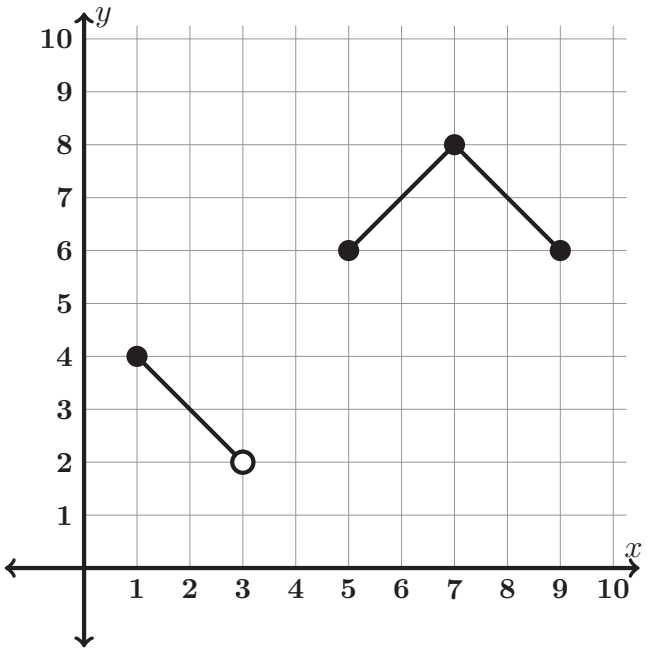
(a) $[2, 4) \cup [6, 8]$

(b) $[1, 3) \cup [5, 9]$

(c) $(-\infty, 3) \cup (3, \infty)$

(d) $[1, 4] \cup (9, 6]$

(e) $[3, 2] \cup (7, 8]$



9. Which one of the choices has only true statements about the average rate of change of this graph on the given intervals?

Possibilities:

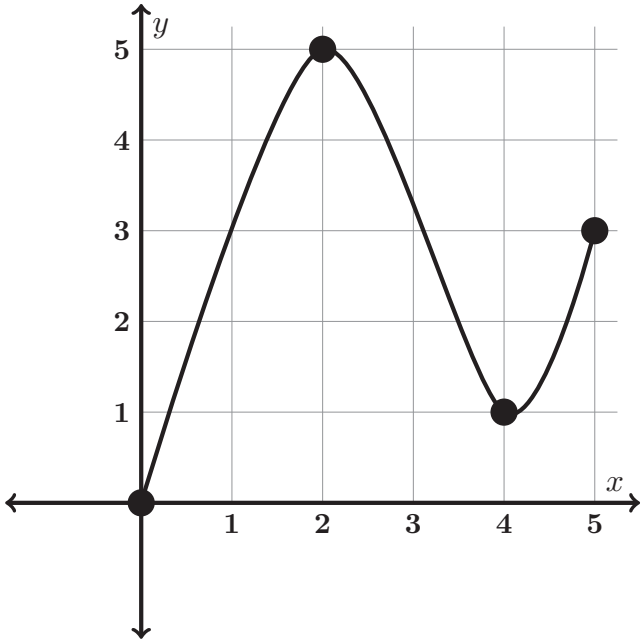
(a) On $[2, 4]$ the AROC is zero.

(b) On $[2, 3]$ the AROC is positive.

(c) On $[1, 4]$ the AROC is positive.

(d) On $[2, 3]$ and $[3, 4]$, the AROC is positive.

(e) On $[0, 2]$ and $[4, 5]$, the AROC is positive.



10. A truck leaves a town at 80 kilometers per hour. How long will it take a second truck, travelling at 144 kilometers per hour, to catch the first truck if it leaves 2 hours later?

Possibilities:

(a) 4.5 hours

(b) 3 hours

(c) 1.5 hours

(d) 2.5 hours

(e) 24 hours

11. If (A, B) is a point in quadrant II, which quadrant is (B, A) in?

Possibilities:

(a) Quadrant I

(b) Quadrant II

(c) Quadrant IV

(d) None of the other choices

(e) Quadrant III

12. Find the domain of $\sqrt{36-x}$ in interval notation.

Possibilities:

(a) $(-\infty, 36]$

(b) $(6, \infty)$

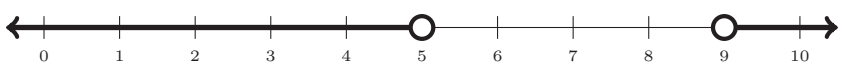
(c) $(-\infty, 6)$

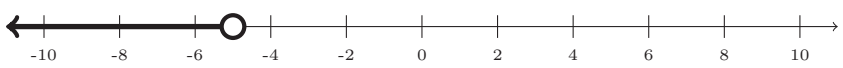
(d) $[36, \infty)$

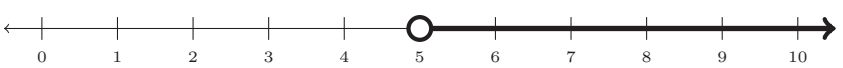
(e) $(-\infty, \infty)$

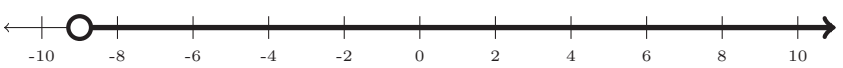
13. Find the domain of $f(x) = \dfrac{9}{5-x}$.

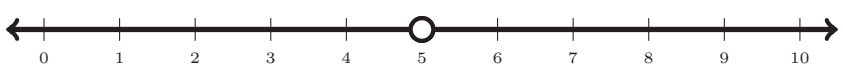
Possibilities:

(a) 

(b) 

(c) 

(d) 

(e) 

14. Find k if the line through $(6, 4)$ and $(8, k)$ has slope $m = \frac{3}{2}$.

Possibilities:

(a) $k = 1$

(b) $k = -5$

(c) $k = 7$

(d) $k = 2$

(e) $k = -3$

15. Let $h(x) = \dfrac{1}{x^2}$. Find $h(x) + 5$

Possibilities:

(a) $\dfrac{1}{x^2} + 5$

(b) $\dfrac{5}{x^2}$

(c) $\dfrac{1}{x^2 + 10x + 25}$

(d) $\dfrac{1}{x^2 + 5}$

(e) $\dfrac{1}{x^7}$

16. Find a linear function $f(x) = mx + b$ such that $f(2) = 53$ and $f(7) = 153$.

Possibilities:

(a) $f(x) = \frac{146}{51}x + \frac{2411}{51}$

(b) $f(x) = 20x + 13$

(c) $f(x) = \frac{153}{7}x + 2$

(d) $f(x) = 2x + 53$

(e) $f(x) = \frac{53}{2}x + 153$

17. Let $f(x) = 2x - 3$ and solve $f(x) = 5$.

Possibilities:

(a) $x = \frac{3}{2}$

(b) $x = 5$

(c) $x = 7$

(d) $x = 4$

(e) $x = -3$

18. The graph on the right defines y as a function of x. An input of 2 results in what output?

Possibilities:

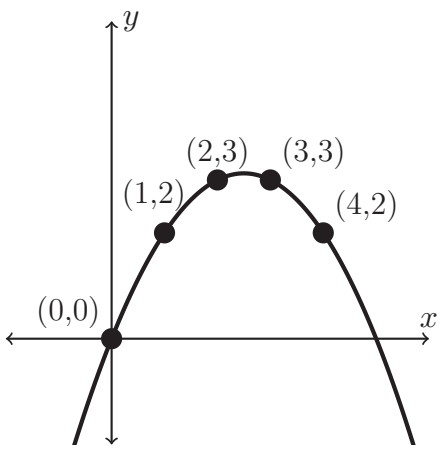
(a) $y = 0$

(b) $y = 4$

(c) $y = 1$

(d) $y = 3$

(e) $y = 2$



19. The graph from #18 defines y as a function of x. What input(s) result in an output of 2?

Possibilities:

(a) $x = 1$ and $x = 4$

(b) $x = 0$ only

(c) $x = 2$ only

(d) $x = 2$ and $x = 3$

(e) $x = 3$ only

20. The graph from #18 defines y as a function of x. What is the average rate of change of this function from $x = 1$ to $x = 3$?

Possibilities:

(a) $m = 3$

(b) $m = 5$

(c) $m = 1$

(d) $m = 2$

(e) $m = \frac{1}{2}$

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Right	Grade	Wrong
20	100	0
19	95	1
18	90	2
17	85	3
16	80	4
15	75	5
14	70	6
13	65	7
12	60	8
11	55	9
10	50	10
9	45	11
8	40	12
7	35	13
6	30	14
5	25	15
4	20	16
3	15	17
2	10	18
1	5	19
0	0	20

GOOD LUCK!

1. (b)	11. (c)	
2. (c)	12. (a)	
3. (d)	13. (e)	
4. (c)	14. (c)	
5. (a)	15. (a)	
6. (b)	16. (b)	
7. (e)	17. (d)	
8. (b)	18. (d)	
9. (e)	19. (a)	
10. (d)	20. (e)	

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