MA109 — College Algebra Fall 2015
Exam 1 2015-09-23

Name: _____ **Sec.:** _____

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GOOD LUCK!

1.	a	b	c	d	e	**11.**	a	b	c	d	e
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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.

1. Solve for b in $2(9 - \sqrt{b}) = 16$.

   Possibilities:

   (a) $b = 1$

   (b) $b = 10$

   (c) $b = -7$

   (d) $b = \dfrac{13}{2}$

   (e) No solution

2. Find the y-intercept(s) of the graph of $y - 17 = x^2 - 8x - 2$.

   Possibilities:

   (a) $(3, 15)$ and $(5, 15)$

   (b) $(3, 0)$ only

   (c) $(0, 15)$ only

   (d) $(3, 0)$ and $(5, 0)$

   (e) $(5, 0)$ only

3. Solve for x in $3 + |1 - x| = 5$.

   Possibilities:

   (a) 7 and -1

   (b) 7 only

   (c) -1 only

   (d) 3 only

   (e) -1 and 3

4. Solve for t in $\dfrac{(7t-6)^3}{3} = 9$.

Possibilities:

(a) $\dfrac{7}{9}$

(b) 61731

(c) $\dfrac{9}{7}$

(d) $6 \pm \sqrt{27}/7$

(e) $\dfrac{15}{7}$

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5. The point $(7, 4)$ is on the graph of which of the following equations?

Possibilities:

(a) $x = y - 3$

(b) $xy + 28 = xy + 16$

(c) $4x + 28 = 4y + 28$

(d) $xy = 0$

(e) $4x + 28 = xy + 28$

---

6. The graph of $x^2 + y^2 - 14x - 8y + 61 = 0$ is a circle. Find its center and its radius.

Possibilities:

(a) Radius: 4 Center: $(14, 8)$

(b) Radius: $\sqrt{61}$ Center: $(7, 4)$

(c) Radius: 2 Center: $(7, 4)$

(d) Radius: $\sqrt{61}$ Center: $(-7, -4)$

(e) Radius: 2 Center: $(-7, -4)$

---

7. How many distinct, real solutions does each equation have?

(I) $4x^2 + 9x + 5 = 0$ **(II)** $7x^2 + 2x + 3 = 0$

Possibilities:

(a) **(I)** has 2 distinct, real solutions; and **(II)** has 1 distinct, real solution

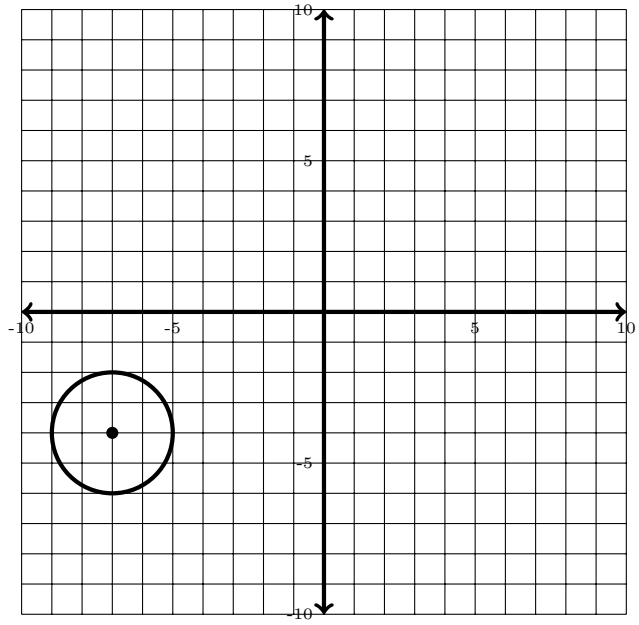
(b) **(I)** has 1 distinct, real solution; and **(II)** has 2 distinct, real solutions

(c) **(I)** has 0 distinct, real solutions; and **(II)** has 1 distinct, real solution

(d) **(I)** has 0 distinct, real solutions; and **(II)** has 2 distinct, real solutions

(e) **(I)** has 2 distinct, real solutions; and **(II)** has 0 distinct, real solutions

8. Find an equation for the circle shown below:



Possibilities:

(a) $(x + 14)^2 + (y - 8)^2 = -4$

(b) $(x - 7)^2 + (y + 4)^2 = 2$

(c) $(x - 7)^2 + (y - 4)^2 = 4$

(d) $(x + 7)^2 + (y + 4)^2 = 4$

(e) $(x + 7)^2 + (y - 4)^2 = 2$

9. Find all distinct, real solutions x to $\sqrt{6-x} = x - 4$

Possibilities:

(a) 6 only

(b) 5 only

(c) 2 and 5

(d) 2 only

(e) 6 and -4

---

10. Find all distinct, real solutions x to $3x = x^5$.

Possibilities:

(a) $x = \sqrt[5]{3}$ only

(b) $x = 0$ and $x = \sqrt[5]{3}$

(c) $x = 0$ and $x = \pm\sqrt[4]{3}$

(d) $x = \pm\sqrt[4]{3}$ and $x = \sqrt[5]{3}$

(e) $x = \pm\sqrt[4]{3}$ only

---

11. Find all distinct, real solutions x to $x^2 + 7x + 5 = 0$.

Possibilities:

(a) $\dfrac{-7 \pm \sqrt{29}}{2}$

(b) $\dfrac{-7 \pm \sqrt{69}}{2}$

(c) $\dfrac{\pm 7 - \sqrt{29}}{2}$

(d) $\dfrac{\pm 7 - \sqrt{69}}{2}$

(e) No solution

---

12. How many distinct, real solutions x does $\dfrac{3}{x-8}+\dfrac{1}{x-6}=\dfrac{5}{x^2-14x+48}$ have?

Possibilities:

(a) 4 solutions

(b) No solutions

(c) 3 solutions

(d) 2 solutions

(e) 1 solution

13. Find an equation for the line through the points $(7,4)$ and $(2,6)$.

Possibilities:

(a) $y+4=-\frac{5}{2}(x+7)$

(b) $y-4=-\frac{2}{5}(x-7)$

(c) $y+4=-\frac{2}{5}(x+7)$

(d) $y-4=-\frac{5}{2}(x-7)$

(e) $y=\frac{5}{2}(x-7)-4$

14. Rewrite the expression x^2-2x+5 by completing the square.

Possibilities:

(a) $(x-1)^2+4$

(b) $(x+2)^2-5$

(c) $(x+1)^2-4$

(d) $(x-2)^2+5$

(e) $(x+1)^2-5$

15. Find all distinct, real solutions x to $(x^2-3)(x-1)(x-5)=0$.

Possibilities:

(a) $x=3$, $x=1$, and $x=5$

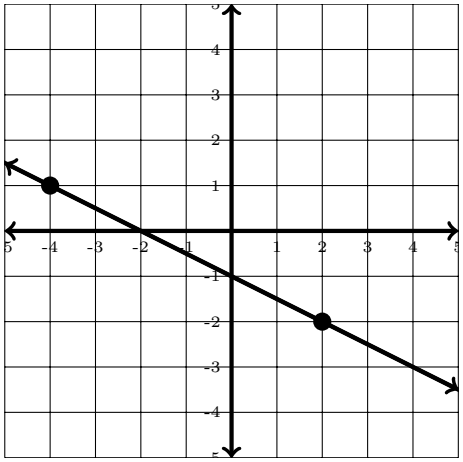
(b) $x=\pm\sqrt{3}$, $x=-1$, and $x=-5$

(c) $x=-3$, $x=-1$, and $x=-5$

(d) $x=\pm\sqrt{3}$, $x=1$, and $x=5$

(e) No solution

16. Find the slope of the line in the graph.



Possibilities:

(a) -2

(b) $-\frac{1}{2}$

(c) 2

(d) $\frac{1}{2}$

(e) The slope is not defined.

17. Find an equation of the line parallel to $y=\frac{4}{7}x+2$ that passes through the point $(6,3)$

Possibilities:

(a) $y=\dfrac{4}{7}(x-6)+3$

(b) $y=-\dfrac{7}{4}(x-6)+2$

(c) $y=\dfrac{4}{7}(x-6)+2$

(d) $y=3$

(e) $y=-\dfrac{7}{4}(x-6)+3$

18. Solve the equation $6x^2 + 104xy = 3$ for y in terms of x

Possibilities:

(a) $y = \dfrac{104x}{6x^2 - 3}$

(b) $y = 3 - 6x^2 - 104x$

(c) $y = \dfrac{-104 \pm \sqrt{10888}}{12}$

(d) $y = \dfrac{3 - 6x^2}{104x}$

(e) $y = \dfrac{6x^2 - 3}{104x}$

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19. Find all distinct, real solutions x to $x^{10} - 8x^5 + 12 = 0$

Possibilities:

(a) $x = 6^5$ and $x = 2^5$

(b) $x = \sqrt[5]{6}$ and $x = \sqrt[5]{2}$

(c) $x = 2$ only

(d) $x = 6$ only

(e) $x = 6$ and $x = 2$

---

20. What is the distance between $(-3, 1)$ and $(5, 8)$?

Possibilities:

(a) 7

(b) 5

(c) 8

(d) $\sqrt{113}$

(e) $\sqrt{15}$

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