

University of Bahrain
College of Science
Department of Mathematics
First Semester 2007/2008

Math A111 – Mid Term Exam

Date: 05/11/2007

Time: 3:00 – 4:00 α

Max. Mark: 40

Student Name:	
Student ID :	Section:
Your Instructor's Name:	

Write all your answers on Page 2.

Please check that you have 6 pages

Max. Marks :	40
Marks Obtained:	

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Answer Sheet α

Student Name:.....Student ID:.....Section:...

Each of the following questions counts 2 Marks

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

Choose the correct answer and write it on the answer sheet on page 2

1. The irrational number in the set $\left\{4, -7, 2.3, \frac{3}{7}, \sqrt{5}\right\}$ is

a) $\frac{3}{7}$

b) $\sqrt{5}$

c) 2.3

d) -7

2. The simplification of the expression $\left(\frac{8}{x^6}\right)^{-2/3} =$

a) $\frac{x^4}{4}$

b) $\frac{4}{x^4}$

c) $\frac{64}{x^2}$

d) $\frac{1}{4x^4}$

3. The simplification of $\left(\frac{h^3 w^2 u^0}{q^{-3} h^{-2}}\right)^{-2} =$

a) $\frac{q^6}{w^4 h^{10} u^2}$

b) $\frac{w^4 h^{10}}{q^6 u^2}$

c) $\frac{q w^4}{h^5}$

d) $\frac{1}{q^6 w^4 h^{10}}$

4. The expansion of $(3z-1)(2z+5)$ is

a) $6z^2 - 13z + 5$

b) $6z^2 - 13z - 5$

c) $6z^2 + 13z - 5$

d) $6z^2 + 13z + 5$

5. The factorization of $x^2 + 4x - 32$ is

a) $(x-4)(x+8)$

b) $(x+4)(x-8)$

c) $(x-4)(x-8)$

d) $(x+4)(x+8)$

6. The factorization of $3x^2 - 11x - 4 =$
- | | |
|----------------------|----------------------|
| a) $(3x - 2)(x + 2)$ | b) $(3x + 1)(x - 4)$ |
| c) $(3x - 1)(x + 4)$ | d) $(3x + 2)(x + 2)$ |
7. The solutions of $2x^2 + 9x + 4 = 0$ are
- | | |
|-------------------------------|-------------------------------|
| a) $x = 2, x = \frac{1}{4}$ | b) $x = 4, x = \frac{1}{2}$ |
| c) $x = -2, x = -\frac{1}{4}$ | d) $x = -4, x = -\frac{1}{2}$ |
8. The solutions of the simultaneous equations $\begin{matrix} x + 3y = 9 \\ 3x - 2y = 5 \end{matrix}$ are
- | | |
|--------------------|---------------------|
| a) $x = 3, y = -2$ | b) $x = -3, y = -2$ |
| c) $x = 3, y = 2$ | d) $x = -3, y = 2$ |
9. The coefficient of w^2 in the expansion of $(w + 5x)(2w^2 - 3w)$ is
- | | |
|-------|------|
| a) 10 | b) 6 |
| c) -3 | d) 2 |
10. The simplification of $\frac{r^2 + 8r + 16}{r^2 - r - 6} \div \frac{r^2 - r - 20}{r^2 - 9}$ is
- | | |
|--|--|
| a) $\frac{(r + 4)(r + 3)}{(r + 2)(r - 5)}$ | b) $\frac{(r - 4)(r - 3)}{(r - 2)(r + 5)}$ |
| c) $\frac{(r + 2)(r - 3)}{(r - 5)(r + 4)}$ | d) $\frac{(r + 2)(r - 5)}{(r + 4)(r + 3)}$ |

11. The simplification of $\frac{5}{x} - \frac{x-1}{x-2} =$

a) $\frac{x^2 + 7x - 10}{x(x-2)}$

b) $\frac{-x^2 + 6x - 10}{x(x-2)}$

c) $\frac{3x+10}{x(x-2)}$

d) $\frac{2x^2 - 7x + 10}{x(x-2)}$

12. The simplification of $\frac{x}{x-7} \times \frac{x^2 - 49}{x^2 + 14x + 49} =$

a) $\frac{x}{x-7}$

b) $\frac{x+7}{x}$

c) $\frac{x}{x+7}$

d) $\frac{x-7}{x}$

13. Transpose the formula $at + 3 = b(2 - t)$ to make t the subject :

a) $t = \frac{2b-3}{a+b}$

b) $t = \frac{a-b}{2b-3}$

c) $t = \frac{2b-3}{a-b}$

d) $t = \frac{b+1}{a}$

14. The Solutions of the equation $x^2 - 9x + 6 = 0$ are

a) $x = \frac{-9 \pm \sqrt{105}}{2}$

b) $x = \frac{9 \pm \sqrt{105}}{2}$

c) $x = \frac{-9 \pm \sqrt{57}}{2}$

d) $x = \frac{9 \pm \sqrt{57}}{2}$

15. If $ft = m(h - w)$, and $f = 3, t = 2, m = 6$ and $h = 10$. Then the value of $w =$

a) 9

b) 11

c) 8

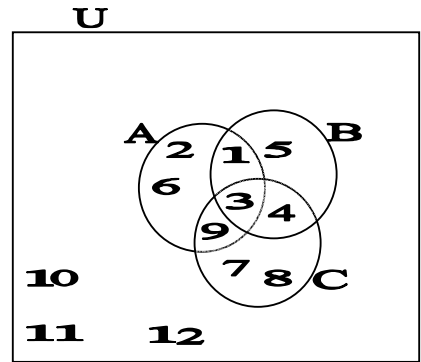
d) 7

16. If $A = \{x \mid x \in N \text{ with } x = k - 2, 2 \leq k \leq 5, k \text{ integer}\}$ then

- a) $A = \{2, 3, 4, 5\}$ b) $A = \{1, 2, 3\}$
 c) $A = \{0, 1, 2, 3\}$ d) $A = \{0, 1\}$

17. From the Venn diagram, $(A \cup B) - C =$

- a) $\{7, 8\}$ b) $\{3, 4, 9\}$
 c) $\{1, 2, 6\}$ d) $\{1, 2, 5, 6\}$



18. If $A = \{x, y\}$. Then

- a) $x \subseteq A$ b) $\{x\} \in A$
 c) $\{x\} \subseteq A$ d) $A \subseteq \{x\}$

19. If $U = \{a, b, c, d, e, f, g\}$, $B = \{a, b, c\}$ and $C = \{e, f, g\}$, then $B \cap C' =$

- a) $\{d\}$ b) $\{a, b, c\}$
 c) \emptyset d) $\{d, e, f, g\}$

20. The Venn diagram represent

- a) $T - M$ b) $M' \cap T$
 c) $(M \cup J)' \cap T$ d) $T - J$

