وزارة التعليم العالي
جامعة الملك سعود
عمادة السنة التحضيرية

King Saud University
Preparatory Year Deanship
Math Skill Department
First Semester

Math 130 (PreCalculus)
Midterm Exam
Time Allowed: 90 Minutes
1433/1434

ESSAY. Answer the questions 1 through 10 in your copybook .(3 marks for each).

1) Consider the numbers $6, \sqrt{7}, -23, 0, \frac{7}{8}, \sqrt{9}, 0.\overline{7},$ Which are rational numbers?

Solution :$6, -23, 0, \frac{7}{8}, \sqrt{9}, 0.7$ (1/2) mark rfor each number

If the universal set U = { -3, -1, 0, 2, 4, 5, 6, 7, 9}, A = {-3, -1, 2, 5}, B = {-3, 2, 5, 7}, and C = {-1,5, 9}.

2) Find $(A \cup B) \cap C$

Solution :$\{-3,-1,2,5,7\} \cap \{-1,5,9\} = \{-1,5\}$

(1) (1) (1)

Solve the inequality.

3) $|x| + 3 > 5$

Solution :$|x| > 2$ (1/2)

$x > 2$ or $x < -2$

(1/2) (1/2) (1/2)

$(2, \infty) \cup (-\infty, -2)$

(1/2) (1/2)

Use the rules of exponents to simplify the expression. Use positive exponents to write the answer.

4) $\frac{x^3(x^{-6})^{-9}}{(x^{-7})^{-8}}$

Solution :$\frac{x3\ x54}{x56} \cdot \frac{x57}{x56} = x$

(1) (1) (1)

Simplify and leave the numerator and denominator in your answer in factored form.

5) $\frac{x^2 - 20x + 100}{9x - 90} \div \frac{4x - 40}{36}$

Solution :$\frac{(x-10)(x-10)}{9(x-10)} \cdot \frac{36}{4(x-10)} = 1$

(1.5) (1) (1/2)

Solve the equation.

6) $4(3x - 2) = 16$

Solution : $12x - 8 = 16$ (1)

$12x = 24$ (1)

$x = 2$ (1)

Write the quotient in the standard form.Where $i=\sqrt{-1}$.

7) $\dfrac{-7+\sqrt{-81}}{7-10i}$

Solution : $\dfrac{-7+9i}{7-10i}\cdot\dfrac{7+10i}{7+10i} = \dfrac{-139-3i}{149} = \dfrac{-139}{149} - \dfrac{3}{149}i$

Find the standard form of the equation of a circle that satisfies the given conditions.

8) Center at (10, 4); radius $\sqrt{6}$

Solution : $(x-10)2+ (x-4)2 =6$

(1) (1) (1)

Solve the equation by completing the square.

9) $x^2 + 16x + 43 = 0$

Solution :$x2+16x =-43$ (1/2)

$(8)2= (8)2$ (1/2)

$(x+8)2 = 21$ (1/2)

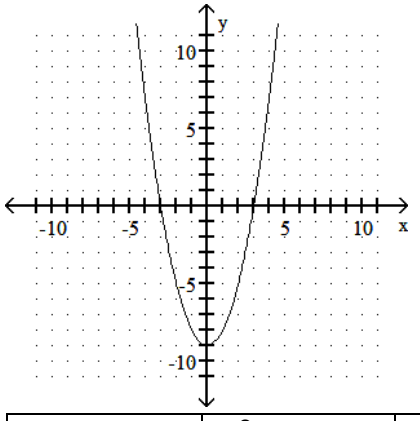
$x+8 = \pm \sqrt{21}$ (1)

$x = -8\pm \sqrt{21}$ (1/2)

Graph the equation by plotting points.

10) $y = x^2 - 4$

11) $y = x^2 - 9$



x	-3	0	3
y	0	-9	0

(1.5) marks for the table (1/2) mark for vertex (1) mark for the curve