Name_____

math 0320 exam #3   0404700aafm032024350mtf 77-57

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

Solve the equation.

1) $x^2 - 7x - 18 = 0$ 1) _____

    A) 9, – 2   B) –9, 2   C) –9, – 2   D) –18, 0

Objective: (13.6) Solve quadratic equations by factoring.
m77–15 m57–11 m53–7 m50–4

2) $2x^2 - 7x - 9 = 0$ 2) _____

    A) $\frac{9}{2}$, –1   B) $\frac{2}{9}$, –1   C) $\frac{2}{9}$, 1   D) $\frac{2}{9}$, 0

Objective: (13.6) Solve quadratic equations by factoring.
m77–22 m57–18 m53–14 m50–7

3) $15x^2 - 8x = 0$ 3) _____

    A) $\frac{8}{15}$, 0   B) $\frac{15}{8}$, 0   C) $-\frac{8}{15}$, 0   D) $-\frac{15}{8}$, 0

Objective: (13.6) Solve quadratic equations by factoring.
m77–26 m57–12 m53–8 m50–8

4) $3x^2 + 21x + 36 = 0$ 4) _____

    A) – 4, – 3   B) $-\frac{1}{2}$, $\frac{1}{2}$ C) 3, 4   D) 7, 8

Objective: (13.6) Solve quadratic equations by factoring.
m77–31 m57–14 m53–10 m50–10

5) $10x^3 + 70x^2 + 120x = 0$ 5) _____

    A) 0, –3, –4   B) –3, –4   C) 0, 3, 4   D) $-\frac{1}{3}$, –4

Objective: (13.6) Solve equations with degree greater than 2 by factoring.
m77–32 m57–14 m53–12 m50–12

6) $9x^3 - 16x = 0$ 6) _____

    A) $\frac{4}{3}$, $-\frac{4}{3}$, 0   B) $\frac{4}{3}$ C) $-\frac{4}{3}$ D) $\frac{4}{3}$, $-\frac{4}{3}$

Objective: (13.6) Solve equations with degree greater than 2 by factoring.
m77–35 m57–15 m53–11 m50–15

Find the product and simplify.

7) $\frac{2y}{4y + 2} \cdot \frac{10y + 5}{7}$ 7) _____

    A) $\frac{5y}{7}$ B) $\frac{5}{7}$ C) $\frac{5y}{14}$ D) $\frac{y}{7}$

Objective: (14.2) Multiply rational expressions.
m77–40 m57–22 m53–18 m50–17

Find the quotient and simplify.

8) $\dfrac{x^2 - y^2}{x + y} \div \dfrac{x}{x^2 - xy}$

8) _____

      A) $(x - y)^2$ B) $(x + y)$ C) $(x + y)^2$ D) $(x - y)(x + y)$

Perform the indicated operation. Simplify if possible.

9) $\dfrac{x^2 - 8x}{x - 6} + \dfrac{12}{x - 6}$

9) _____

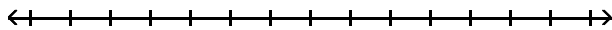   A) $x - 2$ B) $x + 6$ C) $x + 2$ D) $x - 6$

Solve the compound inequality. Graph the solution set.

10) $13 \le 4t + 5 \le 29$

10) _____

A) [2, 6]

B) (2, 6)

C) [–6, –2]

D) (–6, –2)

Solve the absolute value equation.

11) $|x + 3| = 6$

11) _____

      A) –9, 3   B) 9, 3   C) –3   D) ∅

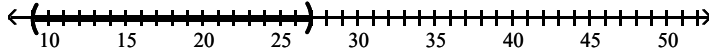**Solve the inequality. Graph the solution set.**
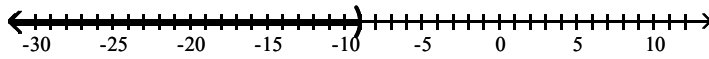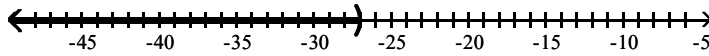
12) $|x + 18| < 9$

A) $(-27, -9)$
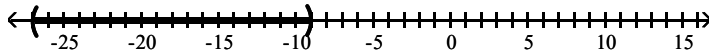
B) $(9, 27)$

C) $(-\infty, -9)$

D) $(-\infty, -27)$

Objective: (16.3) Solve absolute value inequalities of the form $|X| < a$.
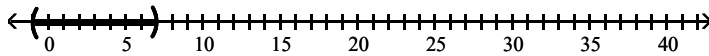m77–53 m57–32 m53–28 m50–22

13) $|x + 3| > 4$
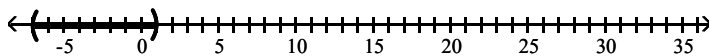
A) $(-\infty, -7) \cup (1, \infty)$
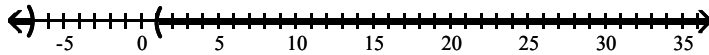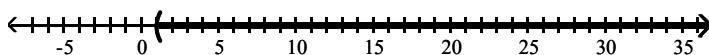
B) $(-1, 7)$

C) $(-7, 1)$

D) $(1, \infty)$

Objective: (16.3) Solve absolute value inequalities of the form $|X| > a$.
m77–54 m57–33 m53–29 m50–23

Find the square root. Assume that all variables represent positive real numbers.

14) $\sqrt{16x^{10}}$

A) $4x^5$ B) $4x^{10}$ C) $16x^5$ D) $4x^2$

Objective: (17.1) Find square roots.
m77–55 m57–34 m53–30 m50–24

Use radical notation to write the expression. Simplify if possible.

15) $256^{1/4}$

A) 4   B) 16   C) 64   D) 1024

Objective: (17.2) Understand the meaning of a^(1/n).
m77–58 m57–37 m53–33 m50–27

12) _____

13) _____

14) _____

15) _____

Simplify the radical expression. Assume that all variables represent positive real numbers.

16) $\sqrt{320k^7q^8}$

    A) $8k^3q^4\sqrt{5k}$ B) $8k^7q^8\sqrt{5k}$ C) $8k^3q^4\sqrt{5}$ D) $8q^4\sqrt{5k^7}$

16) _____

17) $\sqrt[3]{512x^4y^5}$

    A) $8xy\sqrt[3]{xy^2}$ B) $5xy\sqrt[3]{xy^2}$ C) $8xy\sqrt[3]{xy}$ D) $8xy\sqrt{xy^2}$

17) _____

Solve.

18) $\sqrt{x+4}=8$

    A) 60   B) 64   C) 68   D) 144

18) _____

Perform the indicated operation. Write the result in the form a + bi.

19) $\dfrac{8+7i}{9-2i}$

    A) $\dfrac{58}{85}+\dfrac{79}{85}i$ B) $\dfrac{58}{77}-\dfrac{79}{77}i$ C) $\dfrac{86}{85}-\dfrac{47}{85}i$ D) $\dfrac{86}{77}-\dfrac{79}{77}i$

19) _____

Use the square root property to solve the equation.

20) $(x-5)^2=36$

    A) 11, –1   B) –1, –11   C) 6, –6   D) 41

20) _____

Use the quadratic formula to solve the equation.

21) $x^2+24x+144=0$

    A) –12, 12   B) –12   C) 12 – i, 12 + i   D) 12

21) _____

22) $x^2+18x+70=0$

    A) $9+\sqrt{11}$ B) $-18+\sqrt{70}$
    C) $9-\sqrt{70},\ 9+\sqrt{70}$ D) $-9-\sqrt{11},\ -9+\sqrt{11}$

22) _____

23) $x^2-8x+20=0$

    A) 4 – 2i, 4 + 2i   B) 4 – 4i, 4 + 4i   C) 4 + 2i   D) 6, 2

23) _____

24) $2x^2-7x-9=0$

    A) $\dfrac{2}{9},\ 1$ B) $\dfrac{9}{2},\ -1$ C) $\dfrac{2}{9},\ 0$ D) $\dfrac{2}{9},\ -1$
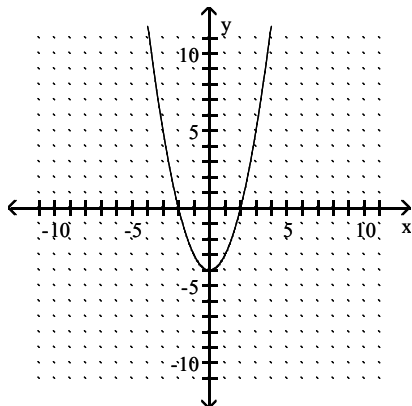
24) _____

Sketch the graph of the quadratic function. Give the vertex and axis of symmetry.

25) $f(x) = x^2 - 4$
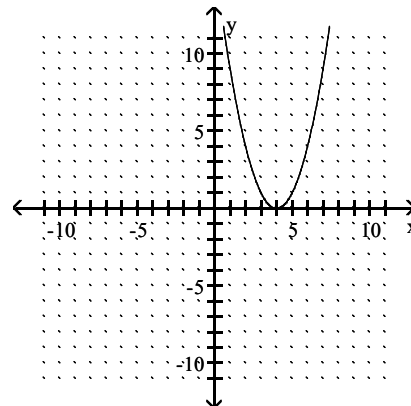
25) _____
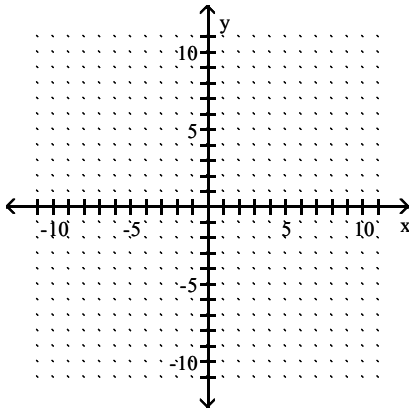
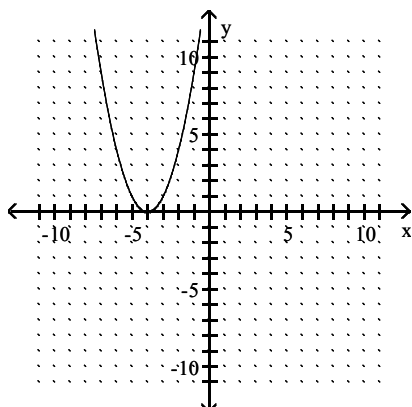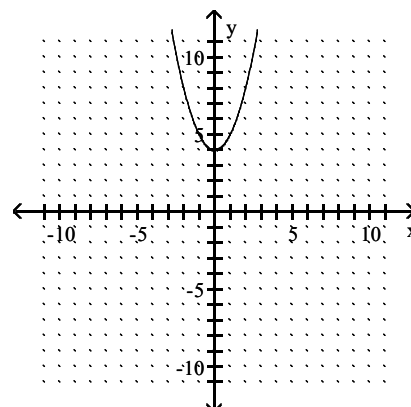A) vertex (0, –4); axis x = 0

B) vertex (4, 0); axis x = 4

C) vertex (–4, 0); axis x = –4

D) vertex (0, 4); axis x = 0

Objective: (18.5) Graph quadratic functions of the form f(x) = x^2 + k.
m77–75 m57–29 m53–51 m50–44

1) A
2) A
3) A
4) A
5) A
6) A
7) A
8) A
9) A
10) A
11) A
12) A
13) A
14) A
15) A
16) A
17) A
18) A
19) A
20) A
21) B
22) D
23) A
24) B
25) A