PRACTICE PROBLEM SET FOR MATH PLACEMENT TEST FOR BUSINESS

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1. **THIS PLACEMENT TEST IS ONLY FOR:**

   - ✓ All Business and Management majors (Accounting, MIS, Management, Marketing, etc.)
   - ✓ Design Management major
   - ✓ International Studies
   - ✓ Economics/Public Administration

2. **INSTRUCTIONS (READ CAREFULLY)**

   - ✓ The test consists of 30 questions. Each question is followed by five suggested answers designated by (A), (B), (C), (D) and (E).
   - ✓ Calculators are not allowed
   - ✓ Spend no more than three minutes per question

Question 1: If n is an odd integer, which of the following must be an odd integer?

A) $n - 1$

B) $n + 1$

C) $2n$

D) $3n + 1$
E) $4n + 1$

Question 2: Simplify the expression $(7x^3 + 2x^2 - x + 4) - (5x^3 - 4x^2 - 3x + 4)$

A) $2x(x^2 + 3x)$

B) $2(x^3 - x^2 - 2x + 4)$
C) $2x(x^2 + 3x + 1)$
D) $2x^2(x^4 + 6x^2 + 2)$
E) $2(x^3 + 3x^2 + x + 4)$

Question 3: Which of the following is equivalent to $(y - 5)(2y^2 + 2y + 3)$?

A) $2y^3 - 8y^2 - 7y - 15$

B) $2y^2 + 3y - 2$
C) $2y^3 - 10y + 3$
D) $2y^2 + y + 8$

E) $2y^3 + 2y^2 - 15$

Question 4: Perform the indicated operation and reduce the answer to lowest terms:

$$\frac{2}{x^2 + x - 6} - \frac{1}{x^2 - 9}$$

A) $\dfrac{1}{(x + 3)(x - 2)(x - 3)}$

B) $x^2 - x - 12$

C) $\dfrac{(x - 4)}{(x + 3)(x - 2)(x - 3)}$

D) $\dfrac{1}{(x^2 + x - 6)(x^2 - 9)}$

E) $\dfrac{1}{x + 3}$

Question 5: Divide the following and reduce the answer to the lowest terms:

$$\frac{8a^2 - 6a - 9}{6a^2 - 5a - 6} \div \frac{4a^2 + 11a + 6}{9a^2 - 4}$$

A) $\dfrac{(4a + 3)^2}{(3a + 2)^2}$

B) $\dfrac{a + 2}{3a + 2}$

C) $\dfrac{2a - 3}{a + 2}$

D) $\dfrac{4a^2 + 11a + 6}{9a^2 - 4}$

E) $\dfrac{4a + 3}{3a + 2}$

Question 6: Simplify the expression

$$\frac{(27a^3 b^6)^{1/3}}{(81a^8 b^{-4})^{1/4}}$$

A) $\dfrac{b}{a}$

B) $\dfrac{b^3}{a}$

C) $\dfrac{a}{b}$

D) $\dfrac{a}{b^3}$

E) None of these

Question 7: Simplify the expression

$$\sqrt[3]{\frac{27x^6 y^3}{2z^2}}$$

A) $\dfrac{3x^2 y}{2z^2} \sqrt[3]{2x^2}$

B) $\dfrac{3x^2 y \sqrt[3]{x^2}}{2z^2}$

C) $\dfrac{3x^2 y \sqrt[3]{4z^2}}{2z^2}$

D) $\dfrac{3x^2 y \sqrt[3]{4z}}{2z}$

E) None of these

Question 8: Simplify the expression $\sqrt[3]{81} + 3\sqrt[3]{24}$

A) 12

B) $9\sqrt[3]{3}$

C) $\sqrt[3]{105}$

D) 9

E) None of these

Question 9: Rationalize the expression

$$\frac{\sqrt{3} - \sqrt{6}}{\sqrt{3} + \sqrt{6}}$$

$A)\ \dfrac{-1 - 2\sqrt{18}}{3}$

$B)\ \dfrac{-3 - 2\sqrt{18}}{9}$

$C)\ -3 + 2\sqrt{2}$

$D)\ 9 - 2\sqrt{18}$

E) None of these

Question 10: Which of the following expressions cannot be factored?

(I) $2x^2 + 9$
(II) $x^2 + x + 1$
(III) $x^2 - 5x + 6$
(IV) $x^2 + 1$
(V) $x^2 - 1$

A) All of them

B) III, IV

C) I, II, III, V

D) I, II, IV

E) None of these

Question 11: Factor completely the expression $9x^2 - 25$

    A) $(9x - 5)(9x + 5)$

    B) $(3x - 5)(3x - 5)$

    C) $(3x - 5)(3x + 5)$

    D) $(3x - 5)^2$

    E) None of these

Question 12: The price of a house increased by 7%. If the new price is $107,000, what was the original cost of the house?

    A) $100,000

    B) $114,490

    C) $99,510

    D) $93,000

    E) None of these

Question 13: Which of the following equations is (are) linear?

    (I) $x = 6$
    (II) $9x - 6y^2 = 2$
    (III) $7x - 2y = 4$
    (IV) $y = \frac{3}{4}x$
    (V) $\frac{y}{x} = 3x + 2$
    (VI) $y = 2$

    A) I, VI

    B) II, III

    C) VI, V

    D) I, III, IV, VI

    E) II only

Question 14: Solve for x the expression

$$\frac{2}{3}\left(x + \frac{a}{6}\right) - 9 = \frac{1}{9}a - 3\left(\frac{a}{4} - \frac{x}{2}\right)$$

A) $\dfrac{9a}{10} - \dfrac{54}{5}$

B) There is no solution

C) $\dfrac{9a + 54}{10}$

D) $\dfrac{10x + 108}{9}$

E) None of these

Question 15: Solve for P the equation $P = A - Prt$

A) $P = A - Prt$

B) $P = \dfrac{A}{rt}$

C) $\dfrac{A}{1+rt}$

D) $\dfrac{A}{2rt}$

E) None of these

Question 16: Solve for x the following equation:

$$\frac{1}{3x - 6} = \frac{3}{5x + 1}$$

A) $\dfrac{19}{4}$

B) $-\dfrac{7}{2}$

C) $\dfrac{1}{2}$

D) $\dfrac{-17}{4}$

E) None of these

Question 17: If $x^2 + 10x = -25$, which of the following is a value for $x^2 - x$?

   A) 5

   B) -20

   C) 30

   D) -5

   E) 20

Question 18: If $t = e^{x+2}$ then $x =$

   A) $2 + \ln(t)$

   B) $\dfrac{t+2}{e}$

   C) $\dfrac{t}{e}$

   D) $\ln(t-2)$

   E) $\ln(t) - 2$

Question 19: Solve the logarithmic equation $log_2(x) = -3$

   A) $\dfrac{1}{6}$

   B) 8

   C) -8

   D) $\dfrac{1}{8}$

   E) None of these

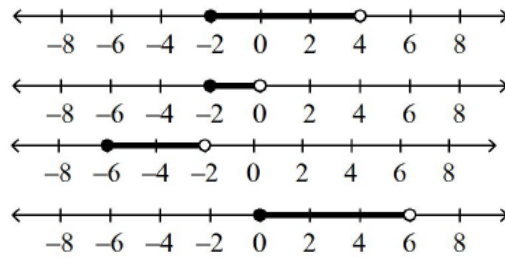**Question 20:** Find the solution of the inequality $\frac{3}{2}(5x - 2) < \frac{4}{3}(2x + 5)$

   A) $x < 2$

   B) $x > 2$

   C) $x < 12$

   D) $x > 12$

   E) None of these

Question 21: Solve the double inequality $-8 \leq 2x - 4 < 4$ and graph the solution set:

A) $-2 \leq x < 4$

B) $-2 \leq x < 0$

C) $-6 \leq x < -2$

D) $0 \leq x < 6$

E) None of these

Question 22: Solve the inequality $|12 + 3x| > 21$

A) $(-\infty, -11) \cup (3, \infty)$

B) $(-11, 3)$

C) $(3, \infty)$

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

E) None of these

Question 23: The inequality $x^2 - 14x > 15$ is equivalent to

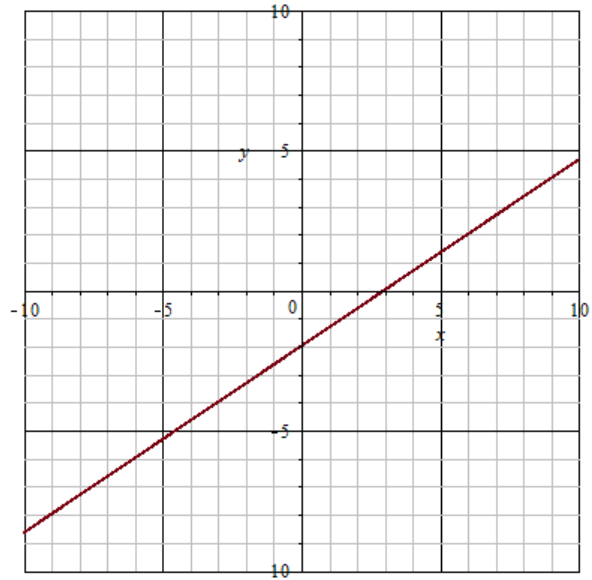A) $-3 < x < 5$

B) $-1 < x < 15$

C) $3 < x < 5$

D) $x < -1$ or $x > 15$

E) $x < 3 \ or \ x > 5$

Question 24: What is the slope of the line $x = 7$?

A) 7

B) 0

C) undefined

D) $\frac{1}{7}$

E) None of these

Question 25: Which of the following equations represents the line graphed?

A) $2x + 3y = 6$

B) $3x + 2y = 6$

C) $3x - 2y = 6$

D) $2x - 3y = 6$

E) $3x - 2y = -6$

Question 26: If a car rental agency charges
$15 per day plus $0.30 per kilometer, which of the following is an expression for the total charges in dollars of renting a car for one day and driving m kilometers?

A) $15 + 0.30m$

B) $15m + 0.30$

C) $15.30m$

D) $15 + 3m$

E) $0.30m$

Question 27: $9x(4x - 1)(3x + 2) = 0$ then $x =$

A) $-\frac{2}{3}, 0, \frac{1}{4}$

B) $-\frac{2}{3}, \frac{1}{4}$

C) $-\frac{3}{2}, 0, 4$

D) $-\frac{3}{2}, 0, \frac{1}{4}$

E) None of these

Question 28: If $f(x) = 3x^2 + 3x + 7$ then $f(k - 1) =$

A) $3k^2 + 24k + 13$

B) $-3k^2 + 3k + 7$

C) $3k^2 - 3k + 7$

D) $3k^2 - 3k + 13$

E) None of these

Question 29: The function $f(x) = \dfrac{x+2}{(x-1)(3x+4)}$ is defined for

A) All real numbers except for $x = -2, x = -\dfrac{4}{3}$ and $x = 1$

B) All real numbers except $x = -\dfrac{4}{3}$ and $x = 1$

C) All real numbers except $x = -2$ and $x = -\dfrac{4}{3}$

D) All real numbers except $x = -2$ and $x = 1$

E) None of these

Question 30: A car salesman received a weekly salary of W dollars plus a 6% commission on his total sales S, which expression best describes his weekly pay?

A) $W + S$

B) $0.6(W + S)$

C) $0.06W + S$

D) $W + 0.06S$

E) $W + 6S$

ANSWERS

Question #	Answer
1	E
2	C
3	A
4	C
5	C
6	B
7	D
8	B
9	C
10	D
11	C
12	A
13	D
14	A
15	C
16	A
17	C
18	E
19	D
20	A
21	A
22	A
23	D
24	C
25	D
26	A
27	A
28	C
29	B
30	D