1)   Which choice is a translation of the phrase 'five less than double the sum of a
        number and one'? Let n = the number.

        A $2(n+1)-5$
        B $2n+1-5$
        C $5-2(n+1)$
        D $2n-5$
        E $5-2n+1$

2)   Which statement(s) is(are) **true**?

I	Every integer is a rational number.
II	Every irrational number is a real number.
III	Some rational numbers can be irrational numbers.

        A   II only
        B   II and III only
        C   I and II only
        D   I and III only
        E   III only

3)   Evaluate this expression, if $x=8,\ y=-6,$ and $z=-4$.

        $$y-\left(xz+y^2\right)$$

        A   62
        B -24
        C   2
        D -10
        E -74

4)   Which statement is **false**?

     A $3a - 12b + 8b - \dfrac{1}{2}a = \dfrac{5}{2}a - 4b$

     B $-3(m-5) - 2(3m-8) = -9m + 31$

     C $6r - 7t + 1 - 4r - 7 - 11t = 2r - 18t - 6$

     D $6 - (4y - 2) - 7 = 1 - 4y$

     E $4x + 3(2x - 5) + 12 = 10x + 7$

5)   Solve the equation. $\dfrac{1}{3}(3x - 5) = 3x - 2$

     A $x = -\dfrac{3}{2}$

     B $x = -\dfrac{11}{6}$

     C $x = \dfrac{11}{6}$

     D $x = -\dfrac{1}{2}$

     E $x = \dfrac{1}{6}$

6)   The length of a small herb garden is 1.6 feet less than double the width of the garden. If the perimeter of the garden is 26.8 feet, which equation could be used to find the width of the garden, if *w* represents the width?

     A $w + (2w - 1.6) = 26.8$

     B $2w + (2w - 1.6) = 26.8$

     C $2w + 2(w - 1.6) = 26.8$

     D $2w + 2(2w - 1.6) = 26.8$

     E   None of the above.

7)   An online catalog company sells all their sports jackets for 80% above the wholesale cost
        plus a shipping fee of $7. Julia orders a jacket from the company and she is billed
        $125.80. Find the company's wholesale cost of Julia's jacket.
        Which statement describes this wholesale cost?

        A   Wholesale cost is less than $60.

        B   Wholesale cost is between $65 and $70.

        C   Wholesale cost is between $60 and $65.

        D   Wholesale cost is greater than $75.

        E   Wholesale cost is between $70 and $75.

8)   The amount in a savings account that began with Principal investment P invested at a
        simple interest rate r for t years is modeled by the formula $A = P + Prt$. Solve this
        formula for t.

        A $t = \dfrac{A - P}{Pr}$

        B $t = \dfrac{A + P}{Pr}$

        C $t = \dfrac{A}{P} - Pr$

        D $t = AP - Pr$

        E $t = \dfrac{P - A}{Pr}$

9)   The formula $R = r + \dfrac{400(W - L)}{N}$ is used to establish a chess player's rating R, after he or
        she has played N games, where W is the number of wins, L is the number of losses, and r
        is the average rating of the opponents. (Assume there are no draws.) In a tourney, Jose
        won 6 games and lost 2. If his chess rating is 1290, find the average chess rating of his
        opponents. Round to the nearest whole number, if necessary.

        A   1490
        B   645
        C   872
        D   1090
        E   1130

10)   Simplify. Leave no zero or negative exponents in your answer.

$$\left(\frac{a^2 b^{-3}}{2^{-1} b^{-5}} \right)^3$$

A $\dfrac{8a^6}{b^{24}}$

B $\dfrac{-a^6 b^6}{8}$

C $\dfrac{8a^6}{b^6}$

D $8a^6 b^{24}$

E $8a^6 b^6$

11)   In 2003 the U.S. national debt was approximately $\$3.18 \times 10^{11}$. Currently it is about 42.1 times as many dollars as it was in 2003. How can this huge amount be written using scientific notation?

A 13.4×10^{13}

B 1.34×10^{13}

C 13.4×10^{11}

D 1.34×10^{12}

E 1.34×10^{11}

12)   The ordered pair, (x, y), where x is the solution of $\dfrac{2}{3} x = -6$ and y is the solution of $2(y - 4) = 3y$, is found in which quadrant?
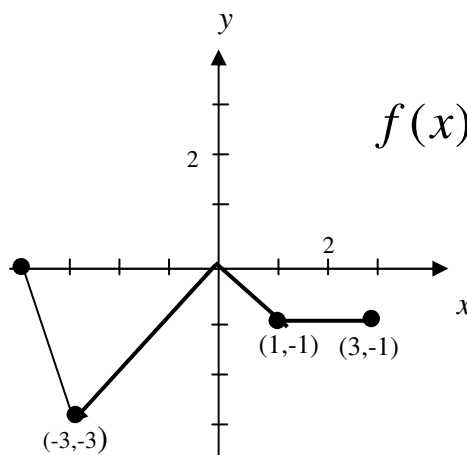
A   I

B   II

C   III

D   IV

E (x, y) would be on an axis.

13)   Which equation(s) is(are) paired with a correct solution?

I	$2x - 5y = 12,$	$(-1, -2)$
II	$x - \dfrac{3}{2}y = -1,$	$(2, 2)$
III	$y = x^2 - 7,$	$(-3, 2)$

    A   II only

    B   II and III only

    C   III only

    D   I and III only

    E   I only

14)   Using the graph of $f(x)$ shown, find the value of $f(3)$ and the domain of $f(x)$.

    A $f(3) = -1,$ Domain: $-4 \le x \le 3$

    B $f(3) = -3,$ Domain: $-4 \le x \le 3$

    C $f(3) = -1,$ Domain: $-3 \le x \le 0$

    D $f(3) = -3,$ Domain: $-4 \le x \le -1$

    E $f(3) = 0,$ Domain: $-3 \le x \le -1$

15)   If $f(x) = 3 - 2x,$ find $f(a + 2)$.

    A $f(a + 2) = -2a + 5$

    B $f(a + 2) = -2a + 7$

    C $f(a + 2) = -2a - 1$

    D $f(a + 2) = a + 3$

    E $f(a + 2) = -a + 3$