F1 Early Summer Assignment: MC 01

1. $1.5 \div [-5 - (-10)] \times (-\frac{1}{3}) =$

   A. -0.9

   B. -0.18

   C. -0.1

   D. $\frac{1}{30}$

2. Which of the following is a negative number?

   A. $\frac{(-2)(+5)(-3)}{(-4)(-8)}$

   B. $\frac{(+6)(-7)}{(+10)(-2)}$

   C. $\frac{(+3)(+20)}{(-2)(-6)(-4)}$

   D. $\frac{-9}{(-3)(+7)}$

3. Which of the following is correct?

   A. $(+3) + (-3) > 0$

   B. $(+3) + (-3) < 0$

   C. $(+3) - (-3) > 0$

   D. $(+3) - (-3) < 0$

4. Put a cup of water of 13°C into a refrigerator. The temperature of water decreases by 20°C. What is its temperature now?

   A. –20°C

   B. –7°C

   C. 0°C

   D. 7°C

5. a, b and c are three numbers on a number line. b is on the left of a. c is on the right of a. Arrange a, b and c in ascending order of their values.

   A. a, c, b

   B. c, a, b

   C. a, b, c

   D. b, a, c

6. If a, b, c and d are four different integers and $a \times b \times c \times d = 9$, then $a + b + c + d =$

A. 8.

B. 4.

C. 0.

D. –4.

7. $-3^2 - (-5) \times (-4) =$

A. 29

B. 11

C. –11

D. –29

8. $(-1) + (-1) \times (-1) + (-1) \times (-1) \times (-1) + \cdots + \underbrace{(-1) \times (-1) \times \cdots \times (-1)}_{100 \text{ terms}} =$

A. 1

B. 0

C. –1

D. –100

9. The value of x in the sequence $\frac{1}{2}, \frac{3}{4}, \frac{5}{6}, x, \frac{9}{10}, \ldots$ is

A. $\frac{6}{7}$.

B. $\frac{7}{8}$.

C. $\frac{8}{9}$.

D. 1.

10. The 9th term of the sequence $\frac{1}{3}, \frac{1}{5}, \frac{1}{7}, \frac{1}{9}, \frac{1}{11}, \ldots$ is

A. $\frac{1}{13}$.

B. $\frac{1}{15}$.

C. $\frac{1}{17}$.

D. $\frac{1}{19}$.

11. The algebraic form of "triple the sum of x and the square of y" is

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

B. $3(x+y^2)$

C. x^2+3y^2

D. $3(x^2+y^2)$

12. Jack walks for 3 hours at a speed of p km/h and then rides a bicycle for 2 hours at a speed of q km/h. How far does he go?

A. $6pq$ km

B. $(3p+2q)$ km

C. $(\frac{3}{p}+\frac{2}{q})$ km

D. $(\frac{p}{3}+\frac{q}{2})$ km

13. If $x=-2$, then $x^3-x^2+x+3=$

A. –11.

B. –3.

C. –1.

D. 1.

14. Given the formula $c=(d-1)(e+1)$, find the value of c when $d=-3$ and $e=-2$.

A. –2

B. 4

C. 6

D. 15

15. The total cost of y oranges and x dozens of apples is \$$S$. If each orange costs \$$c$, how much does each apple cost?

A. $\$(\frac{S-cy}{x})$

B. $\$(\frac{S-12cx}{y})$

C. $\$(\frac{S-cy}{12x})$

D. $\$(\frac{S-12cy}{x})$

16. The general term of the sequence $\frac{1}{10}, \frac{3}{11}, \frac{5}{12}, \frac{7}{13}, \frac{9}{14}, \ldots$ is

A. $\frac{2n+1}{10+n}$.

B. $\frac{2n-1}{10+n}$.

C. $\frac{2n+1}{n+9}$.

D. $\frac{2n-1}{n+9}$.

17. Which of the following is not a term in the sequence with the general term $\frac{1}{2n(2n+3)}$?

A. $\frac{1}{54}$

B. $\frac{1}{130}$

C. $\frac{1}{180}$

D. $\frac{1}{236}$

18. $2a^3 \times 3a^5 =$

A. $5a^8$

B. $6a^8$

C. $5a^{15}$

D. $6a^{15}$

19. $(5x^2)^3 =$

A. $15x^5$

B. $125x^5$

C. $5x^6$

D. $125x^6$

20. $(3x^2 - x + 6) - (-2x^2 - 5) =$

A. $x^2 - x + 11$

B. $x^2 - x - 1$

C. $5x^2 - x - 1$

D. $5x^2 - x + 11$

21. Given that $M = 2a^2b$, $N = 3ab^2$ and $P = -4a^2b$, then

A. $M + N = 5a^3b^3$.

B. $N + P = -ab$.

C. $M + P = -2a^2b$.

D. $M - P = 2a^2b$.

22. When we add a polynomial to $4x^3 - 2x^2 - x - 1$, the result is $3x^3 - x^2 + x - 3$. Find the polynomial.

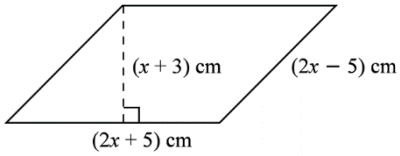
A. $x^3 - 3x^2 - 4$

B. $7x^3 - 3x^2 - 4$

C. $-x^3 + x^2 + 2x - 2$

D. $x^3 - x^2 - 2x + 2$

23. In the above figure, find the area of the parallelogram.



A. $8x\,\text{cm}^2$

B. $(4x^2 - 25)\,\text{cm}^2$

C. $(2x^2 + x - 15)\,\text{cm}^2$

D. $(2x^2 + 11x + 15)\,\text{cm}^2$

24. If we subtract a polynomial from the sum of $x^2y - 3xy^2$ and $7x^2y + 4xy^2 + 3xy$, the result is $5x - 3y$. Find the polynomial.

A. $8x^2y + xy^2 + 3xy - 5x + 3y$

B. $8x^2y - xy^2 - 3xy - 5x + 3y$

C. $8x^2y + xy^2 + 3xy + 5x - 3y$

D. $6x^2y - 7xy^2 + 3xy - 5x + 3y$

25. If we multiply a polynomial by $-3a^2$, the result is $15a^4 - 3a^2$. The polynomial is

A. $-5a^2 + 1$.

B. $5a^2 + 1$.

C. $-45a^6 + 9a^4$.

D. $45a^6 - 9a^4$.

26. Polly is y cm tall and Ricky is 142 cm tall. Polly is 8 cm shorter than Ricky. Which of the following equations can represent the above information?

A. $8y = 142$

B. $y - 8 = 142$

C. $y - 142 = 8$

D. $142 - y = 8$

27. The solution of the equation $\frac{1}{3}x + 1 = 0$ is

A. $x = -3$.

B. $x = -1$.

C. $x = 1$.

D. $x = 3$.

28. If $\frac{x}{6} - 2 = 1$, then $x =$

A. $\frac{1}{2}$.

B. 6.

C. 9.

D. 18.

29. The solution of the equation $8x - 4 = 15x + 24$ is

A. 4.

B. -4.

C. $-\frac{20}{7}$.

D. $-\frac{28}{23}$.

30. If $\frac{x \square 4}{3} + 1 = \frac{x}{2}$, then $x =$

A. -7.

B. -2.

C. 1.

D. 2.

31. If $\frac{x}{3} = 4y$ and $5y = 15$, then $x =$

A. 3.

B. 12.

C. 36.

D. 60.

32. $5x + 3 = 0$ and $5x + 3m = 27$ are two equations in x. If they have the same solution, then $m =$

A. 1.

B. 8.

C. 9.

D. 10.

33. Winnie buys 3 apples and 4 peaches at $36. If an apple is $2 cheaper than a peach, how much does an apple cost?

A. $3

B. $4

C. $5

D. $6

34. There is a two-digit number. The ten digit is smaller than the unit digit by 3. The sum of the two digits is equal to $\frac{1}{4}$ of this number. Find the number.

A. 25

B. 36

C. 52

D. 63

35. If $x = 7$ is the solution of the equation $\frac{x}{3} + k = \frac{1}{3}$, then the solution of the equation $5x + 4 = 3x + k$ is

A. $x = -\frac{20}{3}$.

B. $x = -3$.

C. $x = -1$.

D. $x = 3$.

36. Car A starts travelling from place X and car B starts travelling from place Y at the same time. They travel towards each other. They meet after 4 hours. If places X and Y are 264 km apart and the speed of car A is 1.2 times that of car B, how far does car B travel in one hour?

A. 30 km

B. 36 km

C. 60 km

D. 120 km