



دائرة التعليم والمعرفة
DEPARTMENT OF EDUCATION
AND KNOWLEDGE

Al- Dhafra region

منطقة الظفرة

Al Huiteen School for girls

مدرسة الحويتين



وزارة التربية والتعليم
Ministry of Education

عام
زاييد



YEAR OF
ZAYED

MATH 2020

Final Revision

T2 -T3

Created by : Mathematics department

Teacher : Zeinab Elsherbini

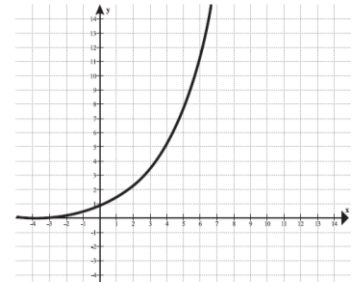
هذه المراجعة لا تغنى عن المذاكرة و المراجعة من الكتاب المدرسي



Circle the letter corresponding to the correct answer

1. Which type of graph is shown?

- A. logarithmic B. Quadratic
C. Exponential decay D. Exponential growth



2. The solution of the equation $\log_3 x - \log_3 2 = \log_3 7$ is

- A. $x = 8$ B. $x = 9$ C. $x = 11$ D. $x = 14$

3. The value of x in the equation $4^{(3x-7)} = 16$ is

- A. $x = 2$ B. $x = 3$ C. $x = \frac{5}{3}$ D. $x = \frac{23}{3}$

4. The expression $2 \log_3 x + \log_3 5 - \log_3 8$ as a single logarithm is

- A. $\log_3(5x^2 - 8)$ B. $\log_3(\frac{5x^2}{8})$
C. $\log_3(x^5 - 8)$ D. $\log_3(\frac{x^2}{8})$

5. Evaluate $\ln e^{-3}$

- A. 3 B. -3 C. e^{-3} D. $\ln -3$

6. Solve $\ln(2x - 3) > 1$

- A. $x > 3$ B. $x > 2$
C. $x < 2.859$ D. $x > 1.5$



7. Evaluate $\log_2 0.5$

- A. 0 B. 0.5 C. 1 D. -1

8. The equation $3^x = 4$ has the solution

- A. $x = \frac{3}{4}$ B. $x = \log_3 4$
C. $x = \log_4 3$ D. $x = \log \frac{4}{3}$

9. solve for x $7^{x^2-6} = 7^{5x}$

- A. $x = 1, -6$ B. $x = -1, 6$
C. $x = -2, -3$ D. $x = 2, 3$

10. Find any values for which $\frac{x+5}{x^3-7x^2+12x}$ is undefined?

- A. 0, 3, 4 B. 0, -3, -4
C. 0, 3, 4, -5 D. 0, -5

11. Write the rational expression $\frac{36c^5d^4}{96cd^8}$ in simplest form

- A. $\frac{c^4}{3d^4}$ B. $\frac{3c^4d^4}{8}$ C. $\frac{c^4d^4}{3}$ D. $\frac{3c^4}{8d^4}$

12. Write the rational expression in simplest form $\frac{1-w}{w^2-1}$

- A. $w + 1$ B. $\frac{-1}{w+1}$ C. $-(w + 1)$ D. $\frac{1}{w+1}$



13. Write the answer in simplest form $\frac{3y+1}{y-4} - \frac{y-9}{y-4}$
- A. $\frac{2y+10}{y-4}$ B. $\frac{4y-8}{y-4}$ C. $\frac{4y+10}{y-4}$ D. 2
14. Common difference of sequence 5 , 8, 11 ,14 ,... is
- A. 3 B. -3 C. 0 D. 1
15. the vertical asymptote for the function $g(x) = \frac{1}{x+2} - 1$ is
- A. $x = -2$ B. $x = -1$
C. $y = -2$ D. $y = -1$
16. The horizontal asymptote for the function $g(x) = \frac{2}{x+1} + 5$ is
- A. $x = 5$ B. $x = -1$
C. $y = 5$ D. $y = -1$
17. If the common difference of an arithmetic sequence is 4 and $a_6 = 15$, find the first term of the sequence.
- A. -9 B. -5 C. 35 D. $\frac{11}{5}$
18. Use summation notation to write the series $49 + 54 + 59 + \dots$ for 14 terms.
- A. $\sum_{n=1}^{14} 49 + 5n$ B. $\sum_{n=1}^{14} 44 + 5n$
C. $\sum_{n=1}^{13} 44 + 5n$ D. $\sum_{n=1}^{44} 49 + 5n$
19. What is the third term of the sequence defined by $a_n = 4n + 6$
- A. 6 B. 10 c. 14 D. 18



20. Which of the following is an arithmetic sequence
- A. 2, 5, 9, 14, 20, B. 1, 3, 6, 10, 15,
- C. -5, -2, 1, 4, 7, D. -3, 0, 4, 9, 15,
21. What is the sum of the first 20 terms of the series
- $3 + 14 + 25 + 36 + \dots$
- A. 226 B. 1252 C. 2010 D. 2150
22. The expression $1 + \sqrt{2} + \sqrt[3]{3}$. Is equivalent to?
- A. $\sum_{k=1}^3 k^{\frac{1}{k}}$ B. $\sum_{k=1}^3 k^{-k}$
- C. $\sum_{k=1}^3 k^k$ D. $\sum_{k=1}^3 \sqrt{k}$
23. What is the sum of an infinite geometric series with the first term 27 and common ratio of $\frac{2}{3}$
- A. 18 B. 34 c. 81 D. 41
24. What are the geometric means of the sequence 0.5, --, --, --, 2048
- A. 4, 32, 256 B. 2, 8, 32
- C. 683, 1365.5, 2048 D. 3, 18, 108
25. Which of the following is a counterexample to the statement?
- $n^2 + n - 11$ is prime
- A. $n = -6$ B. $n = 5$
- C. $n = 4$ D. $n = 6$



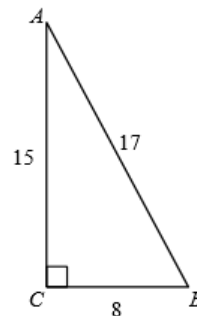
27. What is the next term in the geometric sequence $0, \frac{5}{2}, \frac{5}{8}, \frac{5}{32}, \dots$
- A. $\frac{5}{8}$ B. $\frac{5}{32}$
C. $\frac{5}{125}$ D. $\frac{5}{256}$
28. For the series $\sum_{n=1}^8 4n$, find the number of terms in the series.
- a. 7terms b. 8terms c. 16terms d. 9terms
29. Find the 50th term of the sequence $5, -2, -9, -16, \dots$
- A. -352 B. -338
C. -343 D. -331
30. What is $\sin 30^\circ$?
- A. 0 B. $\frac{\sqrt{3}}{2}$ C. $\frac{1}{2}$ D. 1
31. Find $\sin 75^\circ$
- A. $\frac{\sqrt{2}+1}{2}$ B. $\frac{\sqrt{2}}{2}$ C. $\frac{\sqrt{6}-\sqrt{2}}{4}$ D. $\frac{\sqrt{6}+\sqrt{2}}{4}$
32. What is the equivalent of 72° in radians?
- A. $\frac{2\pi}{10}$ B. $\frac{2\pi}{5}$ C. $\frac{\pi}{5}$ D. $\frac{\pi}{10}$
33. What is the equivalent of $\frac{\pi}{18}$ in degree?
- A. 10° B. 18° C. 36° D. 72°



34. what is $\cos B$ for triangle shown?

A. $\frac{8}{17}$
C. $\frac{8}{15}$

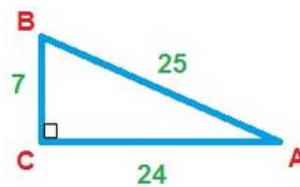
B. $\frac{15}{17}$
D. $\frac{17}{8}$



35. What is $\sec A$?

A. $\frac{24}{25}$
C. $\frac{24}{7}$

B. $\frac{7}{25}$
D. $\frac{25}{24}$



36. What is $\cos 150^\circ$?

A. 0
B. $-\frac{\sqrt{3}}{2}$
C. $\frac{1}{2}$
D. 1

37. What quadrant contains the terminal side of the angle $\frac{10\pi}{3}$?

A. II
B. I
C. IV
D. III

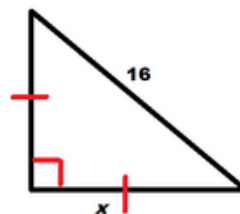
38. What quadrant contains the terminal side of the angle 420° ?

A. II
B. I
C. IV
D. III

39. Find the value of x in the triangle below

A. $4\sqrt{2}$
C. $4\sqrt{3}$

B. $8\sqrt{2}$
D. 8





40. What is $\cot \frac{5\pi}{3}$?

- A. 1 B. $-\sqrt{3}$ C. -1 D. $-\frac{1}{\sqrt{3}}$

41. What is $\csc \frac{11\pi}{6}$?

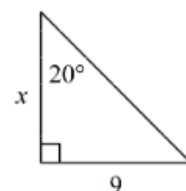
- A. $-\frac{1}{2}$ B. $-\frac{\sqrt{3}}{2}$ C. -2 D. 1

42. If the cosine of an angle is negative but the tangent is positive, what quadrant does the angle lie in?

- A. quadrant 3 B. quadrant 2
C. quadrant 3 and 4 D. quadrant 2 and 3

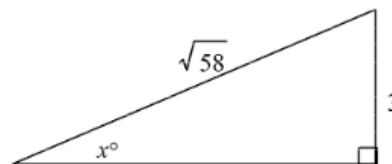
43. Find x to the nearest tenth

- A. 3.3 B. 3.1
C. 24.7 D. 8.5



44. Find x° to the nearest degree

- A. 67° B. 23°
C. 83° D. 53°



45. What is the reference angle of 210° ?

- A. 150° B. 30° C. -30° D. 210°

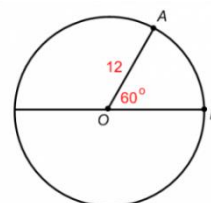


46. The terminal side of θ in standard position contain the point $(-6, 2)$ find the exact value of $\sin \theta$

A. $\frac{1}{\sqrt{10}}$ B. $-\frac{\sqrt{3}}{2}$ C. -3 D. $-\frac{1}{3}$

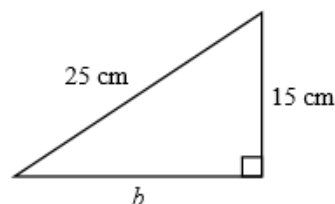
47. A circle with its center at Point O has a radius of 12 cm. If $\angle AOB$ has a measure of 60 degrees, what is the length of arc AB?

A. 2π B. 4π
C. 6π D. 12π



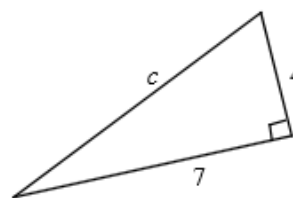
48. Find b to the nearest tenth

A. 20 B. 400
C. 10 D. 29.5



49. Find c to the nearest tenth

A. 11 B. 10
C. 8.1 D. 3.3



50. Complete the identity $\frac{\sin \theta}{\cos \theta} + \frac{\cos \theta}{\sin \theta} =$

A. $-2\tan^2 \theta$ B. $\sec \theta \csc \theta$
C. $\sin \theta \tan \theta$ D. $1 + \cot \theta$



51. Find the exact value of $\cos(\text{Arccos}(\frac{-\sqrt{3}}{2})) =$
- A. 30° B. $\frac{\sqrt{3}}{2}$ C. $-\frac{\sqrt{3}}{2}$ D. 60°
52. Find the exact value of the expression $\sin 20^\circ \cos 100^\circ + \cos 20^\circ \sin 100^\circ =$
- A. $\frac{-1}{2}$ B. $-\frac{\sqrt{3}}{2}$ C. $-\frac{\sqrt{3}}{2}$ D. $\frac{1}{3}$
53. Find the exact value of the expression $\sin \left[\sin^{-1}(\frac{2}{3}) \cos^{-1}(\frac{1}{3}) \right] =$
- A. $\frac{2\sqrt{6}}{5}$ B. $\frac{2\sqrt{3}}{5}$ C. $\frac{2+2\sqrt{10}}{9}$ D. $\frac{2\sqrt{3}+2\sqrt{10}}{9}$
54. Solve the equation $2 \cos \theta + 1 = 0$?
- A. $\frac{3\pi}{2}$ B. $\frac{\pi}{3}, \frac{5\pi}{3}$ C. $\frac{\pi}{2}, \frac{3\pi}{2}$ D. $\frac{2\pi}{3}, \frac{4\pi}{3}$
55. Solve the equation $2 \sin^2 \theta = \sin \theta$, $0 \leq \theta \leq 2\pi$
- A. $\frac{\pi}{3}, \frac{2\pi}{3}$ B. $\frac{\pi}{2}, \frac{3\pi}{2}, \frac{\pi}{3}, \frac{2\pi}{3}$
- C. $\frac{\pi}{6}, \frac{5\pi}{6}$ D. $0, \pi, \frac{\pi}{6}, \frac{5\pi}{6}$
56. Solve the equation $\sin(2\theta) + \sin \theta = 0$, $0 \leq \theta \leq 2\pi$
- A. $\frac{\pi}{8}, \frac{9\pi}{8}$ B. $0, \frac{2\pi}{3}, \pi, \frac{4\pi}{3}$
- C. $\frac{\pi}{4}, \frac{3\pi}{4}, \frac{5\pi}{4}, \frac{7\pi}{4}$ D. **No solution**



57. Find the exact functional value if $\cos \theta = \frac{-5}{13}$ and $\tan \theta < 0$, then find $\sin 2\theta$

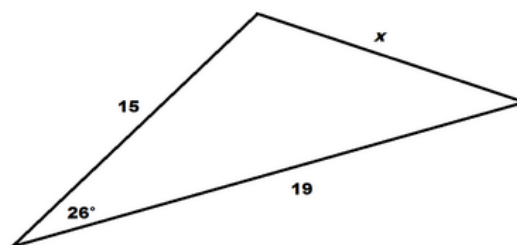
A. $\frac{119}{169}$ B. $\frac{-119}{169}$ C. $\frac{120}{169}$ D. $\frac{-120}{169}$

58. Use the fundamental identities to simplify the expression $\sin^2 \theta + \tan^2 \theta + \cos^2 \theta$

A. $\sin \theta$ B. $\sec^2 \theta$ C. $\cos^3 \theta$ D. $\tan^2$

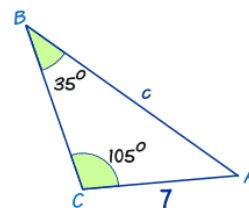
59. Find x to the nearest tenth

A. 12.3 B. 9.1
C. 4.9 D. 8.6



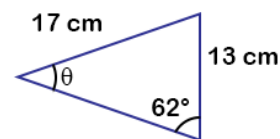
60. Find c to the nearest tenth

A. 11.8 B. 4.2
C. 4 D. 6.8



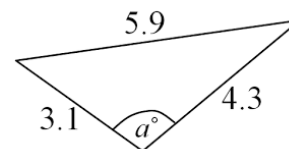
61. Find θ to the nearest degree

A. 42° B. 60°
C. 30° D. 90°



62. Find a° to the nearest degree

A. 67° B. 45°
C. 31° D. 105°





63. If $\cos \theta = \frac{-3}{5}$, $\pi \leq \theta \leq \frac{3\pi}{2}$ Find the exact value of $\cos \frac{\theta}{2}$?
- A. $\frac{\sqrt{5}}{5}$ B. $-\frac{\sqrt{30}}{10}$ C. $-\frac{\sqrt{30}}{10}$ D. $-\frac{\sqrt{5}}{5}$
64. If $\sin \theta = \frac{-3}{5}$, $\frac{3\pi}{2} \leq \theta \leq 2\pi$ Find the exact value of $\sin \frac{\theta}{2}$?
- A. $\frac{-\sqrt{10}}{10}$ B. $-\frac{\sqrt{30}}{10}$ C. $\frac{\sqrt{5}}{5}$ D. $\frac{-\sqrt{5}}{5}$
65. Solve the equation $2 \cos \theta + 1 = 0$?
- A. $\frac{3\pi}{2}$ B. $\frac{\pi}{3}, \frac{5\pi}{3}$ C. $\frac{\pi}{2}, \frac{3\pi}{2}$ D. $\frac{2\pi}{3}, \frac{4\pi}{3}$
66. Simplify the expression $(\sec \theta - 1)(\sec \theta + 1) =$
- A. $\tan^2 \theta$ B. $\cot^2 \theta$ C. $-\tan^2 \theta$ D. $-\cot^2 \theta$
67. Simplify the expression $\tan \theta - \sec \theta \cos \theta =$
- A. $-\tan \theta$ B. $\cot \theta$ C. $-\cot \theta$ D. $\tan \theta$
68. Find the exact value of the expression $\tan[\sin^{-1}(-1)] =$
- A. undefined B. 1 C. 0 D. -1
69. Find the amplitude and the period of $y = 4 \cos 3\theta$
- A. 4, 60° B. 4, 120°
C. 3, 45° D. 4, 90°
70. Which trigonometric function has amplitude 2 and period 45° ?
- A. $y = 8 \cos(2\theta)$ B. $y = 2 \cos(8\theta)$
C. $y = 8 \sin(2\theta)$ D. $y = 2 \tan(8\theta)$



71. Find the center and radius of the circle with equation

$$(x - 5)^2 + (y + 6)^2 = 50$$

- A. $(5, -6); 5\sqrt{2}$ B. $(5, -6); 25$
C. $(-5, 6); 25$ D. $(-5, 6); 5$

72. Identify the center of the hyperbola with equation $\frac{(x-2)^2}{9} - \frac{(y+4)^2}{64} = 1$

- A. $(2, -4)$ B. $(-2, 4)$ C. $(2, 4)$ D. $(3, -8)$

73. Identify the conic section $4x^2 + 7y^2 + 32x - 56y + 148 = 0$

- A. *ellipse* B. *hyperbola*
C. *circle* D. *brabola*

74. If z varies jointly as x and y , If $x = 20$ when $z = 140$ and $y = -5$. Find x when $z = 7$ and $y = 2.5$

- A. 0 B. 0.5 C. 1 D. -1

75. Which equation represent a hyperbola?

- A. $y^2 = 49 - x^2$ B. $y = 49x^2$
C. $y = 49 - x^2$ D. $y = \frac{49}{x}$

76. The graph of the equation $y = 4x^2 - 5$ is ?

- A. *circle* B. *hyperbola*
C. *ellipse* D. *parabola*



77. Solve the system of equations $4x - 3y = 0$

$$x^2 + y^2 = 25$$

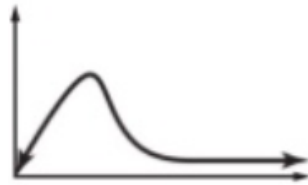
A. $(3, 4), (-3, -4)$,

B. $(-3, 4)(3, -4)$

C. $(3, 4)$

D. $(-3, -4)$

78. Which description best represent the graph ?



A. *negatively skewed*

B. *normal distribution*

C. *no correlation*

D. *positively skewed*

79. Use the table that shows the number of gift cards previously won in a mall contest What is the expected value of the gift card that is won ?

Amount, X	Winners
AED100	495
AED125	405
AED150	285
AED200	180
AED250	90
AED300	45

A. **AED250**

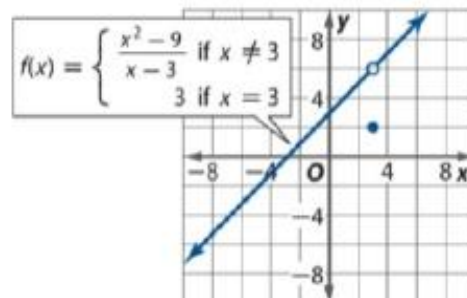
B. **AED223.15**

C. **AED143.25**

D. **AED100.23**



80. The graph of $f(x)$ contains a(an) ----- discontinuity at $x = 3$



- A. undefined B. infinite
C. jump D. removable

81. Evaluate $f(2)$ $f(x) = \begin{cases} x^2 + 3x & \text{if } x < 2 \\ x + 10 & \text{if } x \geq 2 \end{cases}$ for ?

- A. 10 B. 12 C. 9 D. 8

82. what is the range of $y = \frac{x^2 + 8}{2}$?

- A. $\{y: y \neq \pm 2\sqrt{2}\}$ B. $\{y: y \geq 4\}$
C. $\{y: y \geq 0\}$ D. $\{y: y \leq 0\}$

83. Which of the following is inverse of $f(x) = \frac{3x-5}{2}$?

- A. $g(x) = \frac{2x+5}{3}$ B. $g(x) = \frac{3x+5}{2}$
C. $g(x) = 2x + 5$ D. $g(x) = \frac{2x-5}{3}$



84. Which of the following not a function of x ?

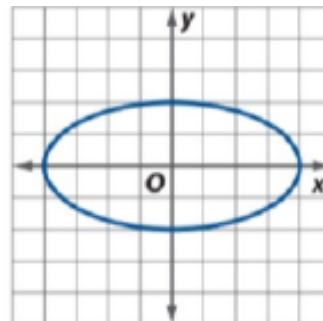
A. $3x - 2y = 18$

B. $y^3 - x = 4$

C.

x	y
5	7
7	9
9	11
11	13

D.



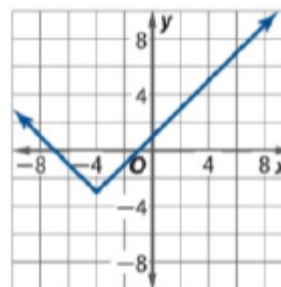
85. Which function is shown in the graph?

A. $f(x) = |x - 4| - 3$

B. $f(x) = |x - 4| + 3$

C. $f(x) = |x + 4| - 3$

D. $f(x) = |x + 4| + 3$



86. Which of the following is an even function?

A. $f(x) = 2x^3 - 5x^2$

B. $f(x) = x^4 - 15$

C. $f(x) = x^2 + 35x$

D. $f(x) = 6x - 3$

87. Which of the following is the domain of $(x) = \frac{1+x}{x^2-16x}$?

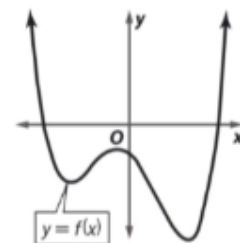
A. $(-\infty, 0) \cup (0, 16) \cup (16, \infty)$



- B. $(-\infty, 0) \cup [16, \infty)$
C. $(-\infty, -1) \cup (-1, \infty)$
D. $(-\infty, -4) \cup (-4, 4) \cup (4, \infty)$

88. Which of the following used to describe the end behavior of $f(x)$?

- A. $\lim_{x \rightarrow -\infty} f(x) = -\infty$ and $\lim_{x \rightarrow \infty} f(x) = -\infty$
B. $\lim_{x \rightarrow -\infty} f(x) = -\infty$ and $\lim_{x \rightarrow \infty} f(x) = \infty$
C. $\lim_{x \rightarrow -\infty} f(x) = \infty$ and $\lim_{x \rightarrow \infty} f(x) = -\infty$
D. $\lim_{x \rightarrow -\infty} f(x) = \infty$ and $\lim_{x \rightarrow \infty} f(x) = \infty$



89. What is the average rate of the $f(x) = x^2 + 3x - 4$ on the interval $[-2, 3]$

- A. 20 B. -20 C. -4 D. 4

90. Which expression represent $f[g(x)] = x^2 + 4x + 3$ and $g(x) = x - 5$

- A. $x^2 + 4x - 2$ B. $x^2 - 6x + 8$
C. $x^2 - 9x + 23$ D. $x^2 - 14x + 6$

تمت بحمد الله