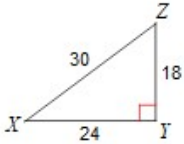


FOUNDATIONS AND PRE-CALCULUS 10

PRACTICE FINAL EXAM

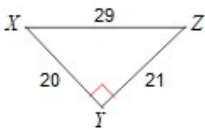
Choose the best answer

1. Determine the trigonometric ratio indicate. Find $\sin X$.



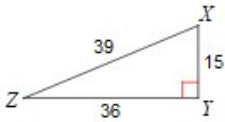
- A $\frac{4}{5}$ B $\frac{4}{3}$ C $\frac{3}{5}$ D $\frac{5}{3}$

2. Determine the trigonometric ratio indicate. Find $\tan Z$.



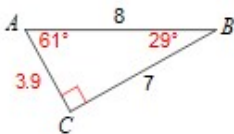
- A $\frac{20}{29}$ B $\frac{20}{21}$ C $\frac{21}{20}$ D $\frac{21}{29}$

3. Determine the trigonometric ratio indicate. Find $\cos Z$.



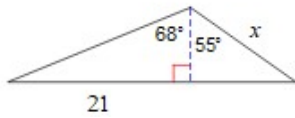
- A $\frac{12}{5}$ B $\frac{13}{5}$ C $\frac{5}{12}$ D $\frac{12}{13}$

4. Solve $\triangle ABC$.



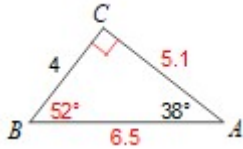
- A $\angle B = 29^\circ$, $\angle A = 61^\circ$, $b = 3.9$ B $\angle B = 28.4^\circ$, $\angle A = 61.6^\circ$, $b = 3.9$
C $\angle B = 26.7^\circ$, $\angle A = 63.3^\circ$, $b = 3.9$ D $\angle B = 31.3^\circ$, $\angle A = 58.7^\circ$, $b = 3.9$

5. Determine the length of x to the nearest tenth.



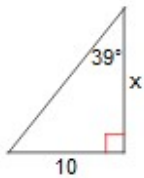
- A** 13.4 **B** 14.8 **C** 17.6 **D** 14.5

6. Solve $\triangle ABC$.



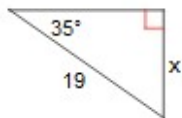
- A** $\angle B = 52^\circ$, $b = 5.7$, $c = 6.5$ **B** $\angle B = 52^\circ$, $b = 5.1$, $c = 7.9$
C $\angle B = 52^\circ$, $b = 5.1$, $c = 6.8$ **D** $\angle B = 52^\circ$, $b = 5.1$, $c = 6.5$

7. Determine the measure of the side indicated to the nearest tenth.



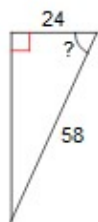
- A** 8.1 **B** 8.8 **C** 12.3 **D** 8.6

8. Determine the measure of the side indicated to the nearest tenth.



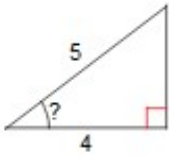
- A** 10.9 **B** 36.3 **C** 11.8 **D** 33.1

9. Determine the measure of the angle indicated to the nearest degree.



- A** 68° **B** 24° **C** 22° **D** 66°

10. Determine the measure of the angle indicated to the nearest degree.



- A 36° B 37° C 39° D 53°

11. Expand and simplify: $(6x + 1)(4x - 8)$

- A $24x^2 - 8$ C $24x^2 - 44x - 8$
B $24x^2 + 52x + 8$ D $24x^2 - 52x + 8$

12. Expand and simplify: $(7x + 6)(3x + 5)$

- A $21x^2 + 53x + 30$ C $24x^2 + 52x + 28$
B $10x^2 + 53x + 30$ D $21x^2 + 53x + 35$

13. Expand and simplify: $(4x - 11)^2$

- A $16x^2 + 121$ C $16x^2 - 88x - 121$
B $16x^2 - 121$ D $16x^2 - 88x + 121$

14. Expand and simplify: $(3m + 1)(3m^2 + 2m - 7)$

- A $49m^3 + 42m^2 - 2m + 16$ C $9m^3 + 9m^2 - 19m - 7$
B $21m^3 + 55m^2 + 17m + 7$ D $6m^3 - 44m^2 - 28m - 7$

15. Expand and simplify: $(3a^2 + 6a - 3)(8a + 8)$

- A $24a^3 + 10a^2 - 26a + 10$ C $24a^3 + 72a^2 + 24a - 24$
B $24a^3 - 60a^2 + 40a - 24$ D $24a^3 - 46a^2 + 39a - 56$

16. Expand and simplify: $-4(2 - 7x) - (3x - 5)^2$

- A $-9x^2 + 58x - 33$ C $-9x^2 - 16x + 17$
B $-9x^2 - 2x - 33$ D $-9x^2 + 14x - 33$

17. Factor: $18m^6 + 3m^5 - 12m^4$

- A $3m^5(6m^3 + m - 4)$ C $3m^5(m^2 + m - 4)$
B $3m^4(6m^2 + m - 4)$ D $m^3(6m^2 + m - 4)$

18. Factor: $-16x^2y^2 + 36xy^3 + 28x^3y^3$

A $4xy^2(4x - 9y - 7x^2y)$

B $-4xy^2(4x + 9y + 7x^2y)$

C $4xy^2(-4x + 9y + 7x^2y)$

D $-4xy^2(4x - 9y - 7x^2y)$

19. Factor: $a^2 + a - 30$

A $2(a - 2)(a + 10)$

B $(a - 5)(a + 6)$

C $(a + 5)(a - 6)$

D $(a - 8)(a + 7)$

20. Factor: $x^2 - 9x + 20$

A $(x + 4)(x - 5)$

B $(x - 4)(x - 5)$

C $(x - 9)(x - 3)$

D $(x - 9)(x - 8)$

21. Factor: $2x^2 - 19x + 24$

A $5(2x + 1)(x - 9)$

B $2(x - 3)(x - 4)$

C $(2x - 3)(x - 8)$

D $(2x - 3)(x + 8)$

22. Factor: $16x^2 + 40x + 25$

A $(16x + 25)^2$

B $(4x - 5)^2$

C $(4x - 5)(4x + 5)$

D $(4x + 5)^2$

23. Factor: $9n^2 - 30n + 25$

A $(3n + 25)^2$

B $(3n + 5)^2$

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

D $(3n - 5)^2$

24. Factor: $x^2 - 256$

A $(x + 16)^2$

B $(x - 16)^2$

C $(x + 16)(x - 16)$

D $(x + 16)(x + 4)(x - 4)$

25. Identify the polynomial $x^2 + 16$ as perfect square trinomial, difference of squares, or neither.

A *perfect square trinomial*

B *difference of squares*

C *neither*

26. Write $5^{\frac{6}{7}}$ in radical form.

A $\sqrt[6]{5^7}$

B $(\sqrt[7]{5})^6$

C $7\sqrt{5^6}$

D $(\sqrt[6]{42})^7$

27. Evaluate $216^{\frac{1}{3}}$ without a calculator.

- A 72 B $\frac{1}{216}$ C 6 D -6

28. Evaluate $16^{-\frac{3}{4}}$

- A -8 B $\frac{1}{8}$ C $\frac{1}{2}$ D 2

29. Simplify $(3a^2)^3(4a^3)^0$. Write with positive exponents

- A $9a^6$ B $27a^6$ C $36a^8$ D $108a^9$

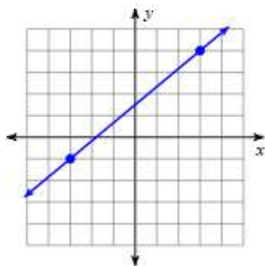
30. Simplify $\sqrt{x^3} \div \sqrt[3]{x^4}$. Write with positive exponents

- A $\sqrt[6]{x}$ B $\sqrt[8]{x^9}$ C $\sqrt[9]{x^8}$ D $\sqrt[12]{x}$

31. Simplify $\left(\frac{25x^a}{12^3}\right)^3$. Write with positive exponents

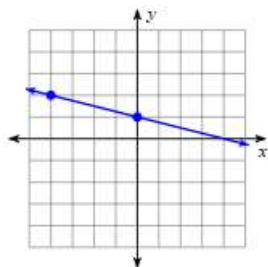
- A $\frac{x^{3a-9}}{125}$ B $\frac{x^{a-3}}{5}$ C $125x^{3a-9}$ D $\frac{x^{27a}}{5}$

32. Determine the slope of the segment



- A $-\frac{6}{5}$ B $\frac{5}{6}$ C $-\frac{5}{6}$ D $\frac{6}{5}$

33. Determine the slope of the segment.



- A 4 B -4 C $\frac{1}{4}$ D $-\frac{1}{4}$

34. Determine the slope of a line passing through $(10, -8)$ and $(16, 18)$.

A $\frac{3}{13}$

B $\frac{13}{3}$

C $-\frac{13}{3}$

D $-\frac{3}{13}$

35. Determine the slope of a line passing through $(-5, 20)$ and $(-11, -8)$.

A $\frac{3}{14}$

B $-\frac{14}{3}$

C $\frac{14}{3}$

D $-\frac{3}{14}$

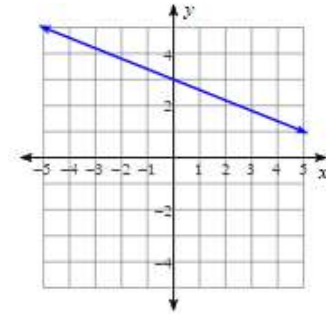
36. What is the equation of the line?

A $y = 3x - \frac{2}{5}$

B $y = \frac{2}{5}x + 3$

C $y = -\frac{2}{5}x + 3$

D $y = -3x - \frac{2}{5}$



37. Write the equation of a line with a slope of $\frac{2}{3}$ and a y-intercept of -2 .

A $y = \frac{2}{3}x - 2$

B $y = -\frac{2}{3}x - 2$

C $y = x - \frac{2}{3}$

D $y = -2x - \frac{2}{3}$

38. Write the equation of a line with a slope of $-\frac{7}{4}$ and passes through $(4, -2)$.

A $y + 2 = -\frac{7}{4}(x - 4)$

B $y - 4 = x + 2$

C $y + 2 = (x - 4)$

D $y - 4 = -\frac{7}{4}(x + 2)$

39. Write the equation of a line in slope-intercept form that passes through $(3, -1)$ and $(-5, 2)$.

A $y = -\frac{3}{8}x + \frac{1}{8}$

B $y = -\frac{1}{4}x - \frac{3}{8}$

C $y = \frac{1}{4}x - \frac{3}{8}$

D $y = \frac{1}{8}x - \frac{3}{8}$

40. Write the equation of a line in point slope form that passes through $(-5, 1)$ and is parallel to $y = \frac{4}{5}x + 4$

A $y + 5 = 3(x - 1)$

B $y - 1 = \frac{4}{5}(x + 5)$

C $y - 1 = -\frac{5}{4}(x + 5)$

D $y + 5 = \frac{4}{5}(x - 1)$

41. Write the equation of a line in point slope form that passes through $(4, -1)$ and is perpendicular to $y = \frac{3}{2}x - 4$

A $y + 4 = -\frac{2}{3}(x + 1)$

C $y + 1 = -\frac{2}{3}(x - 4)$

B $y - 4 = \frac{3}{2}(x + 1)$

D $y + 1 = \frac{3}{2}(x - 4)$

42. Write the equation in general form: $y - 3 = \frac{1}{7}(x + 2)$

A $x + 7y - 23 = 0$

C $2x + 21y - 7 = 0$

B $x - 7y + 23 = 0$

D $5x - 21y + 7 = 0$

43. Write the equation in general form: $y - 3 = 8(x - 1)$

A $x - 8y - 8 = 0$

C $8x - y - 5 = 0$

B $x + 8y - 5 = 0$

D $x + 8y + 8 = 0$

44. Determine the slope of the line: $3x + 2y = -14$

A $-\frac{5}{2}$

B $\frac{3}{2}$

C $\frac{5}{2}$

D $-\frac{3}{2}$

45. Write the equation in slope intercept form: $y + 4 = -(x + 4)$

A $y = -3x - 8$

C $y = 3x - 8$

B $y = -x - 8$

D $y = x - 8$

46. Write the equation in slope intercept form: $13x - 6y + 36 = 0$

A $y = \frac{1}{3}x + 6$

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

B $y = -\frac{13}{6}x + 6$

D $y = \frac{13}{6}x + 6$

47. Solve the system by substitution.

$$\begin{aligned} 7x + 3y &= 17 \\ x + y &= 7 \end{aligned}$$

A $(-8, 1)$

B $(1, -8)$

C $(-1, 8)$

D $(8, -1)$

48. Solve the system by substitution.

$$\begin{aligned} -4 + 2y &= -6x \\ -2x + 3 &= -y \end{aligned}$$

A $(-1, -1)$

B $(1, 1)$

C $(1, -1)$

D *infinite number of solutions*

49. Solve the system by elimination.

$$\begin{aligned} -6x + 10y &= 16 \\ -9x + 2y &= -28 \end{aligned}$$

- A** (4, -4) **B** (9, -4) **C** (4, 4) **D** (9, 4)

50. Solve the system by elimination.

$$\begin{aligned} 4 &= -3x + 2y \\ -3x + 6y + 12 &= 0 \end{aligned}$$

- A** (1, -4) **B** (-4, -1) **C** (-4, 4) **D** (-4, -4)

51. Determine the number of solutions for the linear system:

$$\begin{aligned} -16x + 8y &= 7 \\ 8x - 4y &= -8 \end{aligned}$$

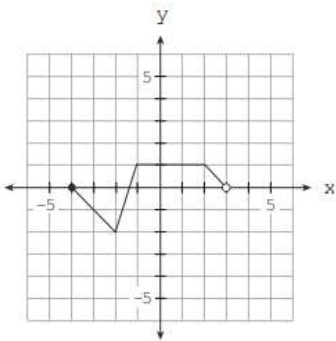
- A** one solution **C** two solutions
B no solution **D** infinite number of solutions

52. Determine the number of solutions for the linear system:

$$\begin{aligned} 16x + 2y &= 30 \\ 24x + 3y &= 45 \end{aligned}$$

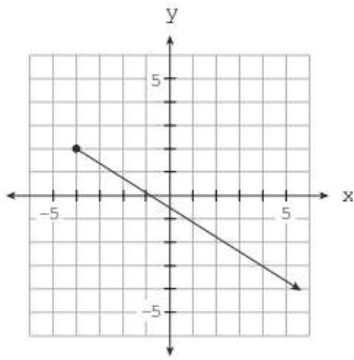
- A** one solution **C** two solutions
B no solution **D** infinite number of solutions

53. Determine the range of the relation.



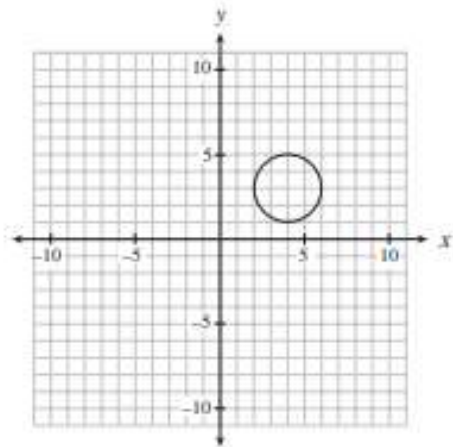
- A** $-4 \leq x < 3$ **B** $-2 \leq x \leq 1$ **C** $-2 \leq y \leq 1$ **D** $-4 < x \leq 3$

54. Determine the range of the relation.



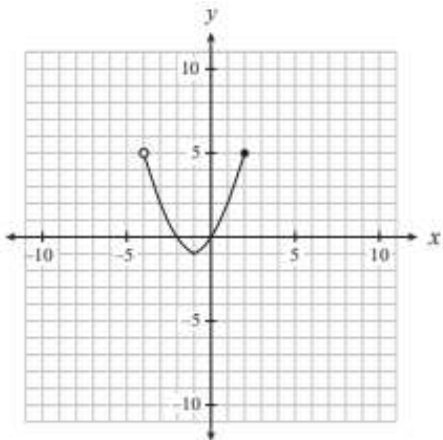
- A $y \in R$ B $y \leq 2$ C $y \geq -4$ D $y \geq 2$

55. Determine the domain of the relation.



- A $1 \leq y \leq 5$ B $1 < y < 5$ C $2 \leq x \leq 6$ D $2 < x < 6$

56. Determine the domain of the relation



- A $-1 < y \leq 5$ B $-1 \leq y < 5$ C $-4 < x \leq 2$ D $-4 \leq x < 2$

57. Which ordered pair is represented by $f(3) = -5$?

- A $(-5, 3)$ B $(-3, 5)$ C $(3, -5)$ D $(5, -3)$

58. The cost of renting C (in dollars) of the room for the prom is modeled by the formula $C(n) = 500 + 4n$, where n is the number of students who will attend the ball. Calculate the cost of renting the room if 70 students attend the ball.

A \$108 **B** \$500 **C** \$780 **D** \$970

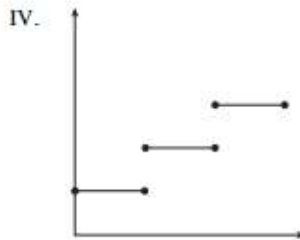
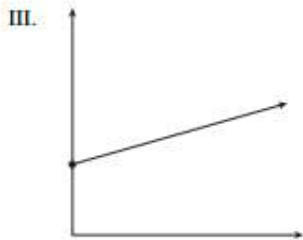
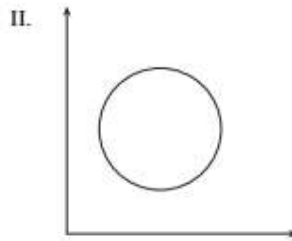
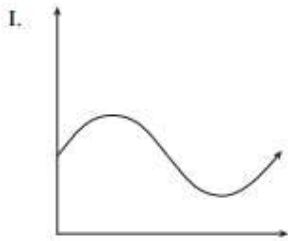
59. Given the function $f(x) = 11 - 8x$, determine $f(-19)$.

A 163 **B** -141 **C** -57 **D** -57

60. Given the function $g(x) = \frac{3}{4}x - 12$, determine the value of x when $g(x) = -63$.

A -100 **B** -68 **C** -38.25 **D** 68

61. Which relations are functions?



A only III **C** only II and IV
B only I and III **D** only I, III and IV

62. Given the arithmetic sequence: $-91, -114, -137, \dots$; determine t_{47} .

A -1172 **B** -1149 **C** -68 **D** -4209

63. Determine the rank of the term for the sequence.

157 is the \blacksquare^{th} term of $-14, -11, -8 \dots$

A t_{57} **B** t_{47} **C** t_{58} **D** t_{171}