1. Find the midpoint of the segment connecting (-2, 8) and (-6, 1)

[A] $\left(-4, \frac{9}{2}\right)$

[B] $(-10, -7)$

[C] $\left(3, \frac{-5}{2}\right)$

[D] $\left(2, \frac{7}{2}\right)$

2. A solution of 73% pesticide is to be mixed with a solution of 57% pesticide to form 32 liters of a 62% solution. How much of the 73% solution must be used in the mixture?

[A] 27 L

[B] 29 L

[C] 15 L

[D] 10 L

3. Simplify. $-3x^4(5x^3 + 4y)$

[A] $2x^3 + xy$

[B] $-15x^7 - 12x^4 y$

[C] $2x^7 - 12x^4 y$

[D] $-15x^{12} + 4y$

4. The price per person of renting a bus varies inversely with the number of people renting the bus. It costs $31 per person if 77 people rent the bus. How much will it cost per person if 91 people rent the bus?

[A] $23.14

[B] $226.03

[C] $26.23

[D] $36.64

5. Solve by the addition method. $\begin{aligned} x+4y&=-12 \\ 3x-4y&=-4 \end{aligned}$

[A] (-4, -2)

[B] (-16, -2)

[C] (0, -3)

[D] no solution

6. Simplify. $(b+9)^2$

[A] $b^2+18b+81$

[B] b^2+81

[C] b^2-81

[D] $b^2-18b+81$

7. Simplify. $\dfrac{3x^3y^{-3}}{6x^7y^3}$

[A] $\dfrac{1}{2x^4y^6}$

[B] $\dfrac{3}{x^3}$

[C] $3x^6$

[D] $\dfrac{3}{x^6}$

8. Simplify. $-3\sqrt{x}+x+8\sqrt{x}-4$

[A] $x+5\sqrt{x}-4$

[B] $24x^2-4$

[C] $-24x^2-4$

[D] $x-11\sqrt{x}-4$

9. Simplify. $(6h+7)(6h-7)$

[A] $36h^2-84h+49$

[B] $36h^2-49$

[C] $36h^2-84h-49$

[D] $36h^2+49$

10. Simplify. $\dfrac{x^2-11x+28}{x^2+5x-36}$

[A] $\dfrac{x-7}{x-9}$

[B] $\dfrac{x+7}{x+9}$

[C] $\dfrac{x+7}{x-9}$

[D] $\dfrac{x-7}{x+9}$

11. Solve. $x+6=5(2x-1)$

[A] $\dfrac{7}{9}$

[B] $\dfrac{1}{9}$

[C] $\dfrac{13}{9}$

[D] $\dfrac{11}{9}$

12. Simplify. $\dfrac{\frac{5}{x}+\frac{1}{2x}}{\frac{4}{3x}-\frac{3}{4x}}$

[A] $\dfrac{66}{7}$

[B] $\dfrac{6}{12x^2}$

[C] $\dfrac{4}{12x^2}$

[D] $\dfrac{7}{66}$

13. Determine the domain of the function. $f(x)=\dfrac{x^2-4x-32}{x^2-8x+12}$

[A] $\{x \mid x \neq 2 \quad and \quad x \neq 6\}$

[B] $\{x \mid x \neq -8 \quad and \quad x \neq 4\}$

[C] $\{x \mid x \neq -2 \quad and \quad x \neq -6\}$

[D] $\{x \mid x \neq 8 \quad and \quad x \neq -4\}$

14. Simplify. $8^{2/3}$

[A] $\dfrac{1}{4}$

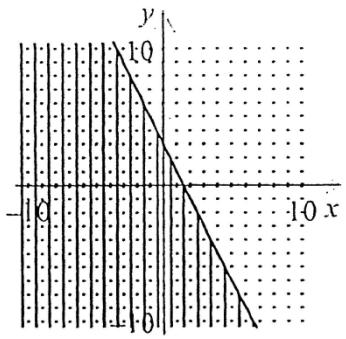
[B] 8

[C] $\dfrac{1}{8}$

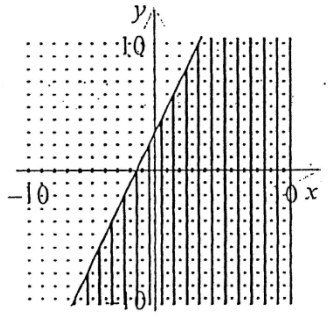
[D] 4

15. Graph. $y \geq -2x + 3$

[A]



[B]



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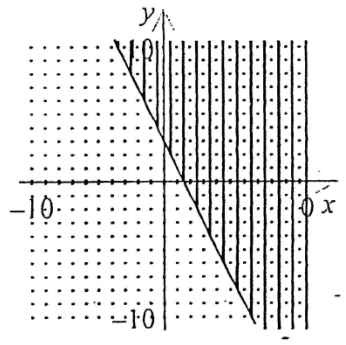
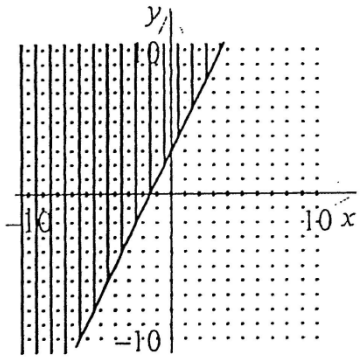


[D]



16. Find $f(2)$ given that $f(x) = 2x^2 + 5x - 21$

[A] 7

[B] -7

[C] 18

[D] -3

17. Solve the formula for the given variable. $C = \frac{100W}{L}$ for W

[A] $W = \frac{100C}{L}$

[B] $W = \frac{100}{LC}$

[C] $W = \frac{LC}{100}$

[D] $W = 100CL$

18. Solve. $|x+7| = 9$

[A] $\{-16\}$

[B] $\{2,-16\}$

[C] $\{16,-2\}$

[D] $\emptyset$

19. Solve. $\sqrt[3]{x-4} = 2$

[A] -4

[B] 12

[C] 8

[D] 17

20. Simplify. $\sqrt{-12}$

[A] $-12i$

[B] $2i\sqrt{3}$

[C] $i\sqrt{-12}$

[D] $-2i\sqrt{3}$

21. Simplify. $(3-4i)+(7+i)$

[A] $-4-5i$

[B] $10+3i$

[C] $25-25i$

[D] $10-3i$

22. Solve using the quadratic formula. $2x^2+6x-3=0$

[A] $\frac{3+2\sqrt{15}}{2}, \frac{3-2\sqrt{15}}{2}$

[B] $\frac{3+\sqrt{15}}{2}, \frac{3-\sqrt{15}}{2}$

[C] $\frac{-3+\sqrt{15}}{2}, \frac{-3-\sqrt{15}}{2}$

[D] $\frac{-3+2\sqrt{15}}{2}, \frac{-3-2\sqrt{15}}{2}$

23. Determine the equation of the line, in slope-intercept form, that contains the points $(-7,-5)$ and $(4,6)$

[A] $y=x-6$

[B] $y=x+2$

[C] $y=x+5$

[D] $y=x-7$

24. Solve. $x+3\le 6 \quad and \quad -4x<8$

[A] $-2\le x<3$

[B] $-2<x\le 3$

[C] $-4<x\le 3$

[D] $-4\le x<3$

25. Solve. $-\frac{x}{4} < -2$

[A] $x > 8$

[B] $x < 8$

[C] $x > -6$

[D] none of these

1) A
2) D
3) B
4) C
5) A
6) A
7) A
8) A
9) B
10) D
11) D
12) A
13) A
14) D
15) C
16) D
17) C
18) B
19) B
20) B
21) D
22) C
23) B
24) B
25) A