1. Solve. $|5x-2|=6$

[A] $\left\{\frac{3}{5},\frac{7}{5}\right\}$

[B] $\left\{\frac{8}{5},\frac{-4}{5}\right\}$

[C] $\left\{\frac{1}{5},\frac{2}{5}\right\}$

[D] $\left\{\frac{13}{5},\frac{-3}{5}\right\}$

2. Given $f(x)=\frac{4x}{x-3}$, evaluate $f(-9)$

[A] 3

[B] 5

[C] 9

[D] -2

3. Find the equation of the line that contains the point (-2, -1) and is perpendicular to the line $y=\frac{4}{5}x+\frac{2}{5}$

[A] $y=\frac{1}{2}x$

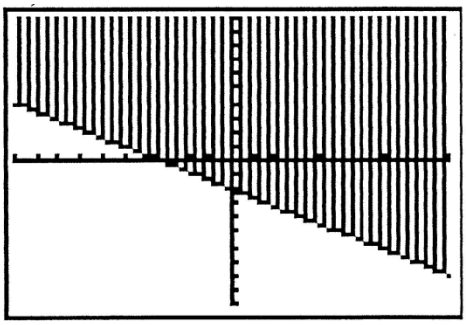
[B] $y=\frac{-1}{4}x-\frac{3}{2}$

[C] $y=\frac{2}{3}x-\frac{7}{3}$

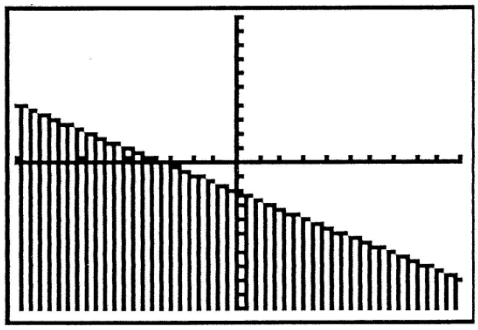
[D] $y=\frac{-5}{4}x-\frac{7}{2}$

4. Graph: $3x + 5y \geq -2$

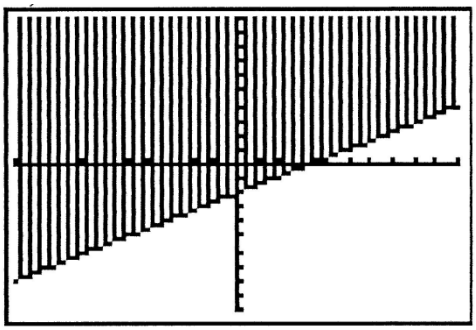
[A]



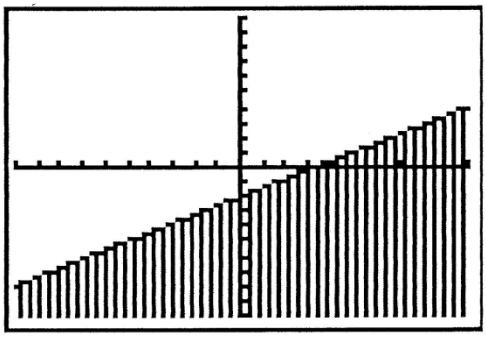
[B]



[C]



[D]



5. Solve by substitution: $\begin{aligned} 4x + 3y &= 13 \\ y &= 5x - 2 \end{aligned}$

[A] (3, 1)

[B] (4, -1)

[C] (1, 3)

[D] (2, 8)

6. Given $f(x) = 3x^4 - x^3 + x^2 - 2$, evaluate $f(2)$

[A] 36

[B] 42

[C] 54

[D] 64

7. Factor: $-3x^4 + 6x^3 - 9x$

[A] $-3(x^4 - 2x^3 + 3x)$

[B] $-3(x^4 + 2x^3 - 3x)$

[C] $-3x(x^3 + 2x^2 - 3)$

[D] $-3x(x^3 - 2x^2 + 3)$

8. Factor: $3x^2 - 13x + 4$

[A] $(3x - 4)(x - 1)$

[B] $(3x + 4)(x - 1)$

[C] $(3x - 1)(x - 4)$

[D] $(3x + 1)(x - 4)$

9. Factor: $49x^2 - 9$

[A] $(7x - 3)(7x - 3)$

[B] $(7x + 3)(7x - 3)$

[C] $(7x + 9)(7x - 9)$

[D] $(7x - 9)(7x - 9)$

10. Factor: $x^3 + 27$

[A] $(x - 3)(x^2 - 3x + 9)$

[B] $(x - 3)(x^2 + 3x - 9)$

[C] $(x + 3)(x^2 - 3x + 9)$

[D] $(x + 3)(x^2 + 3x - 9)$

11. Solve: $x^2 - 3x - 40 = 0$

[A] 5, 8

[B] 5, -8

[C] -5, 8

[D] -5, -8

12. Multiply: $\frac{3x^2 - 7x + 2}{x^2 + 6x - 16} \cdot \frac{x + 8}{4x - 8}$

[A] $\frac{3x - 1}{x - 2}$

[B] $\frac{3x - 1}{4(x - 2)^2}$

[C] $\frac{3x - 1}{4}$

[D] $\frac{3x - 1}{4(x - 2)}$

13. Subtract: $\frac{3x}{x - 5} - \frac{2x + 3}{x - 5}$

[A] $\frac{x + 3}{x - 5}$

[B] $\frac{x - 3}{x - 5}$

[C] $\frac{5x + 3}{x - 5}$

[D] $\frac{5x - 3}{x - 5}$

14. Add: $\dfrac{15}{y^2+3y}+\dfrac{2}{y}+\dfrac{5}{y+3}$

[A] $\dfrac{22}{y(y+3)}$

[B] $\dfrac{7y+25}{y(y+3)}$

[C] $\dfrac{7}{y}$

[D] $\dfrac{7y-17}{y(y+3)}$

15. Simplify: $\dfrac{\dfrac{1}{x}-\dfrac{3}{2x}}{\dfrac{5}{2x}+\dfrac{7}{x}}$

[A] $\dfrac{-1}{15}$

[B] $\dfrac{-1}{17}$

[C] $\dfrac{-1}{19}$

[D] $\dfrac{-1}{21}$

16. Solve: $\frac{3}{x+5} = \frac{-4}{2x-3}$

[A] $\frac{-3}{10}$

[B] $\frac{-11}{10}$

[C] $\frac{-7}{10}$

[D] $\frac{-1}{10}$

17. Simplify: $x\sqrt{9x} + 3\sqrt{4x^3}$

[A] $3x\sqrt{x}$

[B] $12x\sqrt{x}$

[C] $9x\sqrt{x}$

[D] $9x^2\sqrt{x}$

18. Multiply: $\left(\sqrt{x}-3\right)\left(\sqrt{x}+6\right)$

[A] $x-3\sqrt{x}-18$

[B] $x-18$

[C] $x+3x^2-18$

[D] $x+3\sqrt{x}-18$

19. Simplify: $\dfrac{\sqrt{x}-2}{\sqrt{x}+3}$

[A] $\dfrac{x-6\sqrt{x}}{x-9}$

[B] $\dfrac{x+6}{x-9}$

[C] $\dfrac{x-5\sqrt{x}+6}{x+9}$

[D] $\dfrac{x-5\sqrt{x}+6}{x-9}$

20. Multiply: $(4+3i)(2-i)$

[A] $11+10i$

[B] $11+2i$

[C] $8+10i$

[D] $8+2i$

21. Simplify: $\dfrac{7}{8-3i}$

[A] $\dfrac{7}{8}-\dfrac{7}{3}i$

[B] $\dfrac{23}{73}+\dfrac{15}{73}i$

[C] $\dfrac{56}{73}+\dfrac{21}{73}i$

[D] $\dfrac{47}{73}+\dfrac{25}{73}i$

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

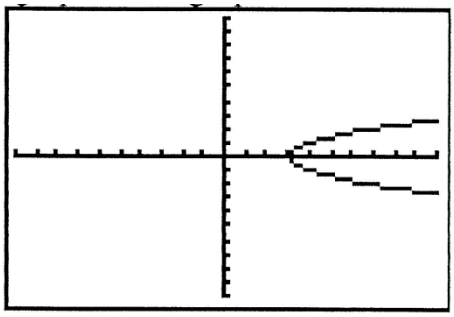
[A] $\frac{1}{6} \pm \frac{5}{6}i$

[B] $\frac{1}{6} \pm \frac{\sqrt{23}}{6}i$

[C] $\frac{-1}{6} \pm \frac{5}{6}i$

[D] $\frac{-1}{6} \pm \frac{\sqrt{23}}{6}i$

23. Use the vertical line test to determine if the following graph is the graph of a function:



[A] Yes it is a graph of a function because we can draw a vertical line at x = 5 and it intersects the graph in two places

[B] Yes it is a graph of a function because we can draw a vertical line at x = -5 and it does not intersect the graph in two places

[C] No it is not a graph of a function because we can draw a vertical line at x = 5 and it intersects the graph in two places

[D] No it is not a graph of a function because we can draw a vertical line at x = -5 and it does not intersect the graph in two places

24. Carmen's Cafe ordered coffee beans from two different distributors at different prices. Carmen wants to combine the two types of coffee beans to make a mixture that costs $1.48 per pound. How many pounds of coffee beans that cost $1.20 per pound should be mixed with 2 pounds of coffee beans that cost $2.60 per pound to obtain the desired mixture?

[A] 8

[B] 10

[C] 6

[D] 9

25. Two travelers were 200 miles apart at 2:00pm and were headed toward each other. if they met at 4:30pm and one was traveling 20 miles per hour faster than the other, what was the speed of each traveler?

[A] 30 mph, 50 mph

[B] 35 mph, 55 mph

[C] 40 mph, 60 mph

[D] 25 mph, 45 mph

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