

MATH 095 Sample 03 Exam 1

**For each problem, show your work in the space provided.
Write your Final Answer (and the letter answer) on the Answer Sheet provided.**

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Factor:

1. $z^3 + 8$

2. $36x^2 + 84xy + 49y^2$

3. Solve: $x^2 - 4x = 0$ [A] 0, 4 [B] 0, -4 [C] 4, -4 [D] 4, -5

4. Factor: $25kx^2 - 10kx + k$

[A] $k(5x - 1)^2$ [B] $k(25x - 1)(x + 1)$ [C] $k(5x - 1)(5x + 1)$ [D] $k(5x + 1)^2$

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5. Solve: $x^2 + 5x - 36 = 0$ [A] $-9, 4$ [B] $-4, 9$ [C] $4, 9$ [D] $-9, -4$

Factor:

6. $49x^2 - 9y^2$
[A] $(7x + 3y)(7x - 3y)$ [B] $(7x + 3)(7x - 3)$ [C] $(7x - 3y)^2$ [D] $(7x + 3y)^2$

7. $27z^3 - 64$
[A] $(3z - 4)^3$ [B] $(3z - 4)(9z^2 + 12z + 16)$
[C] $(3z + 12)(9z^2 - 4z + 16)$ [D] $(3z - 4)(9z^2 + 16)$

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Factor:

8. $12x^2 - 25xy + 12y^2$

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

[B] $(3x + 4y)(4x + 3y)$

[C] $(3x - 4y)(4x + 3y)$

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

9. $25i^2 - 30i + 9$

10. $3x^2 + 18x + 4x + 24$

[A] $x(3x + 6) + 24$

[B] $3 + (x + 4)(x + 6)$

[C] $(3x + 6)(x + 4)$

[D] $(3x + 4)(x + 6)$

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11. Solve: $9x = x^2$ [A] -3, 3 [B] 0, 3 [C] 1, 9 [D] 0, 9

12. Factor: $6pt - 10t - 9pu + 15u$

13. Solve: $x^2 + x - 6 = 0$ [A] -3, -2 [B] 3, 2 [C] -3, 2 [D] -2, 3

14. Richie hopped onto his bicycle and zoomed to the park at 21 miles per hour. Then he biked back at 16 miles per hour. If the total trip took $1\frac{16}{21}$ hours, how far was it to the park?

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15. Add: $\frac{x+4}{-6x} + \frac{-3x-4}{-6x}$

16. Write 280×10^{-2} in standard form.

17. Determine the value or values of the variable for which $\frac{x+6}{4x+5}$ is defined.

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18. Multiply: $x - 2 \cdot \frac{x + 3}{x^2 - 4}$

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

[B] $\frac{x + 3}{x + 2}$

[C] $\frac{x + 3}{x - 2}$

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

19. Divide: $20v^3w^5 \div \frac{5v^2w^5}{5x}$

[A] $20vw$

[B] $\frac{1}{20vx}$

[C] $20vx$

[D] $\frac{100v^5w^{10}}{5x}$

20. A survey indicated that 3 out of 5 doctors used brand X aspirin. If 2000 doctors were surveyed, how many used brand X?

[A] 1200 used brand X

[B] 667 used brand X

[C] 400 used brand X

[D] 800 used brand X

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21. Solve: $\frac{x+4}{x+3} = \frac{x-2}{x+1}$ [A] $x = -\frac{5}{2}$ [B] $x = -1$ [C] $x = -\frac{1}{2}$ [D] $x = -\frac{3}{2}$

Simplify:

22. $\left(\frac{7}{8}\right)^{-2}$ [A] $-\frac{49}{8}$ [B] $\frac{49}{64}$ [C] $\frac{64}{49}$ [D] $-\frac{64}{49}$

23. $\frac{-x}{x+x^2}$ [A] $\frac{1}{x+1}$ [B] $-\frac{1}{x+1}$ [C] $-\frac{1}{x-1}$ [D] $\frac{1}{x-1}$

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Simplify:

24. $\frac{\frac{2}{2x} - \frac{3}{3x}}{\frac{1}{x} + \frac{3}{2x}}$ [A] $-\frac{1}{12x^2}$ [B] 0 [C] $\frac{5}{12x^2}$ [D] $\frac{30}{0}$

25. Solve $s = \frac{v - n}{r - t}$ for n when $s = \frac{4}{3}$, $v = 2$, $r = 8$, and $t = 7$.

[A] $n = \frac{2}{3}$ [B] $n = \frac{5}{2}$ [C] $n = \frac{10}{3}$ [D] $n = \frac{23}{2}$

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[1] _____

[2] _____

[3] _____

[4] _____

[5] _____

[6] _____

[7] _____

[8] _____

[9] _____

[10] _____

[11] _____

[12] _____

[13] _____

[14] _____

[15] _____

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[16] _____

[17] _____

[18] _____

[19] _____

[20] _____

[21] _____

[22] _____

[23] _____

[24] _____

[25] _____

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[1] $(z+2)(z^2-2z+4)$ _____

[2] $(6x+7y)^2$ _____

[3] [A] _____

[4] [A] _____

[5] [A] _____

[6] [A] _____

[7] [B] _____

[8] [A] _____

[9] $(5i-3)^2$ _____

[10] [D] _____

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[11] [D] _____

[12] $(3p - 5)(2t - 3u)$ _____

[13] [C] _____

[14] 16 miles _____

[15] $\frac{1}{3}$ _____

[16] 2.8 _____

[17] all real numbers except $x = -\frac{5}{4}$ _____

[18] [B] _____

[19] [C] _____

[20] [A] _____

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[21] [A] _____

[22] [C] _____

[23] [B] _____

[24] [B] _____

[25] [A] _____