

INDICATE THE CORRECT ANSWER ON THE SCANTRON SHEET AND
CIRCLE THE CORRECT ANSWER ON YOUR TEST PAPER

1. Simplify: $(9+2i)(6-7i)$

A) $68-51i$ B) $68+51i$ C) $-14i^2-51i+54$ D) $40-51i$ E) $40+75i$

2. Find the slope of the line that passes through the given points: $(12,15)$ and $(10,-3)$

A) -9 B) $\frac{6}{11}$ C) $\frac{1}{9}$ D) 9 E) $-\frac{1}{9}$

3. Find the slope of the line $11x-8y=88$

A) $\frac{11}{8}$ B) $-\frac{11}{8}$ C) $\frac{8}{11}$ D) $-\frac{8}{11}$ E) 11

4. Find an equation of the line with the given slope that passes through the given point. Write the equation in the form $Ax+By=C$. $m=\frac{1}{9}$ $(-6,2)$

A) $9x-9y=-24$ B) $x-9y=-24$ C) $x-9y=24$ D) $x-9y=-72$ E) $x+9y=-72$

5. Find $f(-3)$ when $f(x)=4x^2-3x+6$

A) 33 B) 39 C) 36 D) 48 E) 51

6. Express in the form $a+bi$: $\frac{1-6i}{3-2i}$

A) $\frac{1}{4}-9i$ B) $\frac{1}{3}-3i$ C) $1+3i$ D) $\frac{15}{13}-\frac{16}{13}i$ E) $9+4i$

7. Solve the system of equations:

$$y=5x-5$$

$$2y+10x=-70$$

A) $(-3,-20)$ B) $(-20,-3)$ C) $(3,-20)$ D) no solution E) infinite number of solutions

8. Solve the system of equations:

$$x+5y=-22$$

$$3x+4y=-33$$

A) $(-7,-3)$ B) $(-8,-2)$ C) $(7,-2)$ D) no solution E) $(8,-2)$

9. Simplify the expression: $\frac{(x^2)^4}{(2x)^3}$

- A) $\frac{x^5}{8}$ B) $\frac{x^5}{2}$ C) $\frac{x^{11}}{8}$ D) $\frac{x^3}{32}$ E) $\frac{x^3}{8}$

10. Perform the indicated operation and simplify:

$$(26x + 5) - (-4x^2 - 13x + 5)$$

- A) $4x^2 - 39x$ B) $4x^2 + 39x$ C) $4x^2 + 39x - 10$
D) $4x^2 + 13x + 10$ E) $-4x^2 + 13x + 10$

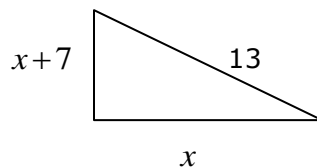
11. If you multiply $(6x - 1)(x^2 - 2x + 1)$ one of the terms will be:

- A) $-13x^2$ B) $-12x^2$ C) $13x^2$ D) $-11x^2$ E) $-9x^2$

12. Multiply $(8z + 3)^2$

- A) $64z^2 + 48z + 9$ B) $8z^2 + 9$ C) $8z^2 + 48z + 9$
D) $16z^2 + 16z + 9$ E) $64z + 9$

13. Find x in the given triangle:



- A) 13 B) $\sqrt{104}$ C) 7 D) 5 E) 12

14. If you factor the polynomials $x^2 - 6x - 27$ and $x^2 + 15x + 54$ which is NOT a factor of either polynomial:

- A) $x+1$ B) $x+9$ C) $x-9$ D) $x+3$ E) $x+6$

15. If you factor $7x^2 + 5x - 2$ one of the factors is:

- A) $7x-1$ B) $7x-2$ C) $7x+1$ D) $x-1$ E) $x-2$

16. A boat can travel 48 miles with the current in 4 hours. The same boat requires 6 hours to travel the same distance against the current. How fast is the current?

- A) 1 mph B) 2 mph C) 3 mph D) 4 mph E) 3.5 mph

17. Solve the equation: $x^2 - x = 72$

- A) $-8, -9$ B) $8, 9$ C) $8, -9$ D) $-8, 9$ E) $4, -18$

18. Al can paint a room in 8 hours. Bob can paint the same room in 14 hours. How long will it take them to paint the room if they work together?

- A) 22 hours B) 11 hours C) $56/11$ hours D) $11/56$ hours E) $65/11$ hours

19. Simplify the rational expression: $\frac{2x+2}{6x^2+16x+10}$

- A) $\frac{2x+2}{6x^2+16x+10}$ B) $\frac{2x+3}{3x+2}$ C) $\frac{1}{3x+5}$ D) $\frac{2x}{3x+5}$ E) $\frac{2}{3x+5}$

20. Find the product and simplify $\frac{x^2+10x+24}{x^2+13x+42} \cdot \frac{x^2+7x}{x^2-5x-36}$

- A) $\frac{1}{x-9}$ B) $\frac{x}{x-9}$ C) $\frac{x(x+7)}{x-9}$ D) $\frac{x}{x^2+13x+42}$ E) $\frac{x+8}{x-9}$

21. Find the solution of the inequality: $t^2 - 2t - 3 \leq 0$

- A) $[-1, 3]$ B) $(-3, 1)$ C) $[-3, 1]$ D) $(-\infty, -1) \cup [3, \infty)$ E) $(-\infty, -3] \cup [1, \infty)$

22. Find the quotient and simplify $\frac{32x^4}{x^2-1} \div \frac{x^8}{(x+1)^2}$

- A) $\frac{32(x+1)}{x^4(x-1)}$ B) $\frac{32x^{12}}{(x-1)(x+1)^3}$ C) $\frac{4(x+1)}{x^4(x-1)}$ D) $\frac{32x^4(x+1)}{(x-1)}$ E) $\frac{32x^{32}}{(x-1)(x+1)^3}$

23. Perform the indicated operation. Simplify if possible.

$$\frac{6x+2}{x^2+13x+40} - \frac{5x-6}{x^2+13x+40}$$

- A) $\frac{x-8}{x^2+13x+40}$ B) $\frac{1}{x^2+13x+40}$ C) $\frac{1}{x+8}$ D) $\frac{x-4}{x^2+13x+40}$ E) $\frac{1}{x+5}$

24. Solve for x : $x^2 + 8x + 9 = 0$

- A) $x = -4$ or $x = 4$ B) $x = 4$ only C) $x = -7$ or $x = -1$ D) $x = -4 + \sqrt{7}$ only
E) $x = -4 + \sqrt{7}$ or $x = -4 - \sqrt{7}$

25. Perform the indicated operation. Simplify if possible $\frac{2}{x} + \frac{9}{x-6}$

- A) $\frac{11x-12}{x(x-6)}$ B) $\frac{12x-11}{x(x-6)}$ C) $\frac{11}{x(x-6)}$ D) $\frac{2x-3}{x(x-6)}$ E) $\frac{9x-12}{x(x-6)}$

26. Solve the equation $1 + \frac{1}{x} = \frac{72}{x^2}$

- A) 8, -9 B) -8, 9 C) $-\frac{1}{8}, \frac{1}{9}$ D) 8, 9 E) $-\frac{1}{8}, -\frac{1}{9}$

27. Simplify: $4 + \frac{\frac{2}{x}}{\frac{x}{3} + \frac{1}{6}}$

- A) $\frac{x}{6}$ B) $\frac{x}{12}$ C) $\frac{12}{x}$ D) 12 E) $\frac{4x+2}{2x+3}$

28. If y varies inversely as x, find the inverse variation equation for the situation
 $y = 100$ when $x = 3$

- A) $y = \frac{300}{x}$ B) $y = \frac{1}{300x}$ C) $y = \frac{x}{300}$ D) $y = \frac{100}{3x}$ E) $y = \frac{100}{3}x$

29. Solve for x : $2x^2 + x + 2 = 0$

- A) $x = 0$ only B) $x = -1$ or $x = 1$ C) $x = 1$ only D) $x = -\frac{1}{4} + \frac{\sqrt{15}}{4}i$ or $x = -\frac{1}{4} - \frac{\sqrt{15}}{4}i$
 E) $x = -\frac{1}{4} + i$ or $x = -\frac{1}{4} - i$

30. Solve for x : $\sqrt{30x+15} = x+8$

- A) $x = 0$ only B) $x = 7$ only C) $x = 7$ and $x = 1$ D) $x = 7$ and $x = -7$ E) no real solution

31. Use radical notation to write the expression. Simplify if possible. $243^{\frac{4}{5}}$

- A) 81 B) 6561 C) 2187 D) 128 E) 162

32. Use the product rule to multiply. Assume all variables represent positive real numbers.

Simplify if possible. $\sqrt{5x^3} \cdot \sqrt{5x^5}$

- A) $\sqrt{25x^8}$ B) $5x^4$ C) $\sqrt{5x^4}$ D) $x^4\sqrt{10}$ E) $5\sqrt{x^{15}}$

33. Subtract. Assume all variables represent positive real numbers.

$2\sqrt{5} - 9\sqrt{45}$

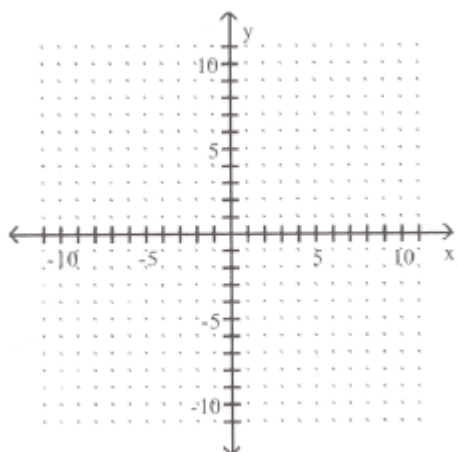
- A) $25\sqrt{5}$ B) $11\sqrt{50}$ C) $11\sqrt{5}$ D) $-25\sqrt{5}$ E) $6\sqrt{5}$

34. Multiply and then simplify if possible. Assume all variables represent positive real numbers.

$(\sqrt{13} + 2) \cdot (\sqrt{13} - 2)$

- A) 17 B) $9 + 2\sqrt{13}$ C) 11 D) 9 E) $9 - 2\sqrt{13}$

35. Draw the graph of: $y = x^2 - 2x - 3$ Be sure to include the vertex and all intercepts.



Answers to Math 1023 Practice Final Exam #1

- | | |
|----|----------------|
| 1 | A |
| 2 | D |
| 3 | A |
| 4 | B |
| 5 | E |
| 6 | D |
| 7 | A |
| 8 | A |
| 9 | A |
| 10 | B |
| 11 | A |
| 12 | A |
| 13 | D |
| 14 | A |
| 15 | B |
| 16 | B |
| 17 | D |
| 18 | C |
| 19 | C |
| 20 | B |
| 21 | A |
| 22 | A |
| 23 | E |
| 24 | E |
| 25 | A |
| 26 | A |
| 27 | C |
| 28 | A |
| 29 | D |
| 30 | B |
| 31 | A |
| 32 | B |
| 33 | D |
| 34 | D |
| 35 | on exam sheets |