

Review for final math 9 sections 01 and 03 – Fall 2022		Answer
1	Evaluate: $xy - x^2y^3 - 3$ ; $x = 2, y = -1$	-1
2	Simplify: $\left(\frac{x^2y^0}{x^7z}\right)^{-4}$	$x^{20}z^4$
3	Subtract: $(5x^3 - 7x - 3) - (4x^3 - 2x^2 - 5) =$	$x^3 + 2x^2 - 7x + 2$
4	Multiply: $(3x - 2)(x^2 - 4x + 2) =$	$3x^3 - 14x^2 + 14x - 4$
5	Multiply: $(x^2 - 5x - 1)(2x + 3) =$	$2x^3 - 7x^2 - 17x - 3$
6	Find the remainder: $(x^3 - 5x + 1) \div (x - 2)$	-1
7	Factor: $14x^3b^2z - 7x^2b$	$7x^2b(2xbz - 1)$
8	Factor: $18x^3y - 50xy^7$	$2xy(3x + 5y^3)(3x - 5y^3)$
9	Factor: $5x^2 + 7x - 6$	$(5x - 3)(x + 2)$
10	Factor: $20x^3 - 8x^2 - 15x + 6$	$(5x - 2)(4x^2 - 3)$
11	Factor: $64x^3 - 1$	$(4x - 1)(16x^2 + 4x + 1)$
12	Factor: $125y^3 + 8$	$(5y + 2)(25y^2 - 10y + 4)$
13	Factor: $27x^3 - 12x$	$3x(3x + 2)(3x - 2)$
14	Multiply: $\frac{3x^2 - 15x}{x^2 - 8x + 15} \cdot \frac{x^2 - 3x}{3x^2 + 3x}$	$\frac{x}{x + 1}$
15	Subtract: $\frac{7}{x-2} - \frac{5}{2-x}$	$\frac{12}{x-2}$
16	Add: $\frac{2}{x^2+3x} + \frac{x}{x^2+8x+15}$	$\frac{x^2 + 2x + 10}{x(x+3)(x+5)}$
17	Simplify: $\frac{\frac{7}{x} - \frac{2}{3x}}{5 - \frac{4}{3x}}$	$\frac{19}{15x - 4}$
18	Divide: $\frac{\sqrt{18x^5}}{\sqrt{2x^7}}$	$\frac{3}{x}$
19	Divide: $\frac{\sqrt{50x^{10}}}{\sqrt{2x^6}}$	$5x^2$
20	Subtract: $3\sqrt{28} - 2\sqrt{63}$	0
21	Solve for x: $5(x + 2)^2 = 15$	$-2 \pm \sqrt{3}$
22	Rationalize the denominator: $\frac{5 + \sqrt{3}}{2 - \sqrt{3}}$	$13 + 7\sqrt{3}$
23	Simplify: $\sqrt[5]{x^{12}y^{15}z^{28}}$	$x^2y^3z^5\sqrt{x^2z^3}$
24	Evaluate: $16^{-3/4}$	$\frac{1}{8}$
25	Solve for x: $5x^2 = 20x$	0,4
26	Solve for x: $3x^2 = 75x$	0,25
27	Evaluate: $\sqrt[4]{\frac{16x^{32}}{y^{12}}}$	$\frac{2x^8}{y^3}$
28	Solve for x: $3x - 2(x - 5) = 2(x + 3) - 4$	8
29	Solve for x: $ax - 10 = bx$	$\frac{10}{a - b}$
30	If $x^2 + 10x - 3 = 0$ , then $(x + 5)^2 =$ _____	28
31	Solve for x: A) $3x^2 + 13x = -10$ B) $3x^2 + 13x = 10$	A) $-\frac{10}{3}, -1$ B) $\frac{2}{3}, -5$
32	Solve for x: $5x^2 = 6 - 13x$	$-3, \frac{2}{5}$
33	Solve for x: $x^2 - 3x = 10$	-2,5

34	Solve for x: $x^2 - 10x - 1 = 0$	$\frac{10 \pm \sqrt{104}}{2} = 5 \pm \sqrt{26}$
35	Solve for x: $\frac{x}{7} - \frac{2}{14} < \frac{3}{2}$	$(-\infty, \frac{23}{2})$
36	Solve for x: $-7 \leq 3x - 1 \leq 11$	$[-2, 4]$
37	Solve for x: $ 2x + 5  - 7 = 0$	$1, -6$
38	Solve for x: $ 5x + 2  > 7$	$(-\infty, -\frac{9}{5}) \cup (1, \infty)$
39	Solve for x: $ 3x - 2  < 5$	$(-\frac{7}{3}, \frac{7}{3})$
40	Find the distance between $(-2, 5)$ and $(-7, 3)$ .	$\sqrt{29}$
41	Find the slope and y-intercept of line: $5x - 3y = 2$	$m = \frac{5}{3}; (0, -\frac{2}{3})$
42	Solve for x: $\frac{2}{x} + \frac{5}{x+1} = \frac{3}{x^2+x}$	$\frac{1}{7}$
43	Solve for x: $\frac{3}{x^2+x} + \frac{5}{x^2+3x+2} = \frac{3}{x^2+3x+2}$	$-\frac{6}{5}$
44	Find the equation of the line through: $(3, 4)$ and $(5, 8)$ .	$y = 2x - 2$
45	Find the equation of the vertical line through $(5, 3)$ .	$x = 5$
46	Find the equation of the horizontal line through $(7, 8)$ .	$y = 8$
47	Find the equation of the line perpendicular to line $y = 3x - 2$ and through $(3, 1)$ .	$y = -\frac{1}{3}x + 2$
48	Find the radius of the circle with equation : $x^2 + y^2 - 10x + 12y - 2 = 0$ .	<i>Center</i> $(5, -6); r = 3\sqrt{7}$
49	Find the y-coordinate of the solution of the system of equations:  $-2x + 3y = 1$ $4x + 7y = 11$	$y = 1$