

		Answer
1.	Find $12 - 7(2 - 5)(-2)$	<u>-30</u>
2.	Find $(7 - 0,5)^2$	<u>42,25</u>
3.	Find $-\frac{2}{21} - \left(\frac{2}{7} - \frac{1}{3}\right)$	<u>$-\frac{1}{21}$</u>
4.	Find $\frac{\frac{5}{8} - 1}{\frac{7}{4} - \frac{1}{3}}$	<u>$-\frac{9}{34}$</u>
5.	Find $(\sqrt{16} + \sqrt{7})(\sqrt{7} - \sqrt{16})$	<u>-9</u>
6.	Find $\frac{\sqrt{15}}{\sqrt{27} + \sqrt{12}}$	<u>$\frac{1}{\sqrt{5}}$</u>
7.	Find $(8)^{\frac{2}{3}}$	<u>4</u>
8.	Simplify $\sqrt[7]{8\sqrt{2}}$	<u>$\sqrt{2}$</u>
9.	Simplify $\sqrt{4 + 2\sqrt{3}}$	<u>$1 + \sqrt{3}$</u>
10.	Simplify $\frac{7^{11} - 7^{10} + 7^9}{86}$	<u>$0,5 \cdot 7^9$</u>
11.	Simplify $(2a^2)^4 - (3a^4)^2$	<u>$7a^8$</u>
12.	Simplify $12\sqrt{18^{-1}} + 8\sqrt{0,5} - 2\sqrt{8}$	<u>$2\sqrt{2}$</u>
13.	Simplify $(1,25 \cdot 10^8)^{-1/3}$	<u>0,002</u>

		Answer
14. Factorize	$(a + b)^2 - (c)^2$	$(a + b + c)(a + b - c)$ <hr/>
15. Factorize	$x^2 - xk^2 - xk + k^3$	$(x - k^2)(x - k)$ <hr/>
16. Simplify	$\frac{(2a + 2b)^{10}}{(4a + 4b)^5}$	$(a + b)^5$ <hr/>
17. Simplify	$\frac{3x^2 - 12}{x^2 + 4x + 4}$	$\frac{3(x - 2)}{x + 2}$ <hr/>
18. Factorize	$x^2 + 13x + 36$	$(x + 4)(x + 9)$ <hr/>
19. Simplify	$\frac{(x + 1)^2 - (2x - 1)^2}{x^3 - 4x^2 + 4x}$	$\frac{3}{2 - x}$ <hr/>
20. Simplify	$\frac{\frac{p}{7} - 2 + \frac{7}{p}}{1 - \frac{7}{p}}$	$\frac{p - 7}{7}$ <hr/>
21. Write an equation of the straight line that passes through $(-2, 5)$ and $(8, -1)$.		$y = -0,6x + 3,8$ <hr/>
22. Write an equation of the straight line that passes through $(-4, 1)$ and is parallel to the line with equation $-x + 2y - 13 = 0$.		$y = 0,5x + 3$ <hr/>
23. Find	$\log_{10} \sqrt{0,001}$	$-1,5$ <hr/>
24. Find	$\log_7 \frac{\sqrt[6]{7}}{\sqrt[3]{49}}$	$-\frac{1}{2}$ <hr/>
25. Find	$\log_{13} 39 + \log_{13} \sqrt{169} + \log_{13} \frac{1}{3}$	2 <hr/>
26. Simplify	$\log_a \frac{11}{23} - \log_a \frac{11}{46}$	$\log_a 2$ <hr/>

		Answer
27.	Solve the equation $\frac{\log_a(2x+2)}{\log_a(x^2-1)} = 1$	$x = 3$
28.	Solve the equation $\log_a(x+2) - \log_a(x-2) = \log_a(2)$	$x = 6$
29.	Solve the equation $\ln x^2 = \ln x^3$	$x = 1$
30.	Solve the equation $\log_2(x+2) - \log_2(x-2) = 1$	$x = 6$
31.	Solve the equation $\frac{8}{x} = \frac{x}{8}$	$x_1 = 8 \quad x_2 = -8$
32.	Solve the equation $(x+7)^2 = 7(x+7)$	$x_1 = 0 \quad x_2 = -7$
33.	Solve the equation $8 - 6x - 2x^2 = 0$	$x_1 = 1 \quad x_2 = -4$
34.	Factorize $8 - 6x - 2x^2$	$-2(x-1)(x+4)$
35.	Solve the equation $x^3 + 2x^2 - x - 2 = 0$	$x_1 = 1 \quad x_2 = -1$ $x_3 = -2$
36.	Solve the equation $x^4 - 6x^2 + 8 = 0$	$x_1 = \sqrt{2} \quad x_2 = -\sqrt{2}$ $x_3 = 2 \quad x_4 = -2$
37.	Solve the equation $2^x \cdot 3^{x-2} = 4$	$x = 2$
38.	Solve the equation $2\sqrt{x-2} = 5-x$	$x = 3$
39.	Solve the equation $\sqrt{20 - \sqrt{2x+2}} = 4$	$x = 7$
40.	Solve the equation $4^x - 6 \cdot 2^x + 8 = 0$	$x_1 = 1 \quad x_2 = 2$

Answer

41. **Solve the equation** $\sqrt{1+x} + \frac{1}{\sqrt{1+x}} = 2,5$

$x_1 = 3 \quad x_2 = -\frac{3}{4}$

42. **Solve the equation** $x^{2x} = \sqrt{x}$

$x_1 = 1 \quad x_2 = \frac{1}{4}$

43. **Solve the inequality** $1 - 3x \geq 7$

$x \leq -2$

44. **Solve the inequality** $\frac{8}{x} \geq 5$

$0 < x \leq 1,6$

45. **Solve the inequality** $x^2 \leq 20$

$-\sqrt{20} \leq x \leq \sqrt{20}$

46. **Solve the inequality** $8 - 6x - 2x^2 \geq 0$

$-4 \leq x \leq 1$

47. **Solve the inequality** $\frac{8 - 6x - 2x^2}{-x} \geq 0$

$-4 \leq x < 0$
 $x \geq 1$

48. **Solve the inequality** $\frac{x}{x-1} \geq 2$

$1 < x \leq 2$

49. **Solve the inequality** $\sqrt{x+3} < x+1$

$x > 1$

50. **Solve the inequality** $(0,7)^{3x} > (0,49)$

$x < \frac{2}{3}$

51. **Solve the system of equations** $\begin{cases} x - y = 6 \\ x + 2y = 12 \end{cases}$

$\begin{cases} x = 8 \\ y = 2 \end{cases}$

Answer

52. **Solve the system of equations**

$$\begin{cases} x + y = 9 \\ xy = 20 \end{cases}$$

$$\begin{cases} x_1 = 4 & x_2 = 5 \\ y_1 = 5 & y_2 = 4 \end{cases}$$

53. **Solve the system of equations**

$$\begin{cases} x^2 - y^2 = 15 \\ x + y = 15 \end{cases}$$

$$\begin{cases} x = 8 \\ y = 7 \end{cases}$$

54. **Solve the system of equations**

$$\begin{cases} x + y + z = 2 \\ 3x - 2y - 7z = 1 \\ 2x + y - z = -2 \end{cases}$$

$$\begin{cases} x = 6 \\ y = -9 \\ z = 5 \end{cases}$$

55. **Solve the system of equations**

$$\begin{cases} 3^x + 3^y = 10 \\ 3^{x+y} = 9 \end{cases}$$

$$\begin{cases} x_1 = 0 & x_2 = 2 \\ y_1 = 2 & y_2 = 0 \end{cases}$$

56. **Find**

$$\sin\left(\frac{7\pi}{6}\right) \cdot \cos\left(-\frac{\pi}{6}\right)$$

$$-\frac{\sqrt{3}}{4}$$

57. **Solve the equation**

$$\begin{aligned} \sin^3(x) &= \sin(x) \\ 0 \leq x &< 2\pi \end{aligned}$$

$$\begin{aligned} x_1 &= 0 & x_2 &= \pi \\ x_3 &= \frac{\pi}{2} & x_4 &= \frac{3\pi}{2} \end{aligned}$$

58. **Solve the equation**

$$\begin{aligned} 2\sin x &= \sin 2x \\ 0 \leq x &< 2\pi \end{aligned}$$

$$x_1 = 0 \quad x_2 = \pi$$

59. **How many solutions are there to the equation?**

$$\begin{aligned} \sin x &= \frac{1}{6} \\ 0 \leq x &\leq 5\pi \end{aligned}$$

6 solutions.

60. **Solve the equation**

$$\begin{aligned} \cos(2x) x_1 - \sin(x) &= 1 \\ 0 \leq x &< 2\pi \end{aligned}$$

$$\begin{aligned} x_1 &= 0 & x_2 &= \pi \\ x_3 &= \frac{7\pi}{6} & x_4 &= \frac{11\pi}{6} \end{aligned}$$
