

$$1) \frac{(3\sqrt{6})^2}{18} = \frac{9 \cdot 6}{18} = 3$$

$$3) \frac{14}{(2\sqrt{7})^2} = \frac{14}{4 \cdot 7} = 0,5$$

$$5) \frac{\sqrt{200}}{4\sqrt{2}} = \frac{10\sqrt{2}}{4\sqrt{2}} = 2,5$$

$$7) \frac{\sqrt{200}}{\sqrt{8}} = \frac{10\sqrt{2}}{2\sqrt{2}} = 5$$

$$9) \sqrt{45 \cdot 27} \cdot \sqrt{60} = \sqrt{9 \cdot 5 \cdot 9 \cdot 3 \cdot 3 \cdot 5 \cdot 4} = 9 \cdot 5 \cdot 3 \cdot 2 = 270$$

$$11) \sqrt{8} \cdot \sqrt{2} + 3 = 2\sqrt{2} \cdot \sqrt{2} + 3 = 7$$

$$13) \sqrt{16^4} = 256$$

$$15) \sqrt{72} + \sqrt{8} - 8\sqrt{2} + 2 = 3\sqrt{8} + \sqrt{8} - 8\sqrt{2} + 2 = 2$$

$$17) (\sqrt{10} - 6)(\sqrt{10} + 6) = 10 - 36 = -26$$

$$19) \sqrt{54} - \sqrt{24} - \sqrt{6} + 12 = 3\sqrt{6} - 2\sqrt{6} - \sqrt{6} + 12 = 12$$

$$21) (\sqrt{62} + 3)^2 - 6\sqrt{62} = 62 + 6\sqrt{62} + 9 - 6\sqrt{62} = 71$$

$$23) \frac{(6^5)^{-6}}{6^{-32}} = \frac{6^{-30}}{6^{-32}} = 6^{-30 - (-32)} = 6^{-30 + 32} = 6^2 = 36$$

$$25) 3^{-11} \cdot (3^5)^3 = 3^{-11} \cdot 3^{15} = 81$$

$$27) \frac{4^{-2} \cdot 4^{-6}}{4^{-10}} = \frac{4^{-8}}{4^{-10}} = 4^{-8 - (-10)} = 4^2 = 16$$

$$29) \frac{4^{15}}{8^9} = \frac{4^{15}}{2^{27}} = \frac{2^{30}}{2^{27}} = 2^3 = 8$$

$$31) \frac{3^{17} \cdot 6^{16}}{18^{15}} = \frac{3^{17} \cdot 2^{16} \cdot 3^{16}}{2^{15} \cdot 3^{45}} = 54$$

$$33) \sqrt{3 \cdot 7^2} \cdot \sqrt{3 \cdot 2^4} = 3 \cdot 7 \cdot 4 = 84$$

$$35) \sqrt{2^4 \cdot 3^2 \cdot 5^4} = 4 \cdot 3 \cdot 25 = 300$$

$$37) 8\sqrt{6} \cdot \sqrt{2} \cdot 2\sqrt{3} = 8\sqrt{6} \cdot 2\sqrt{6} = 96$$

$$39) (\sqrt{20} - \sqrt{5}) \cdot \sqrt{5} = \sqrt{100} - \sqrt{25} = 5$$

$$41) (5 + \sqrt{2})^2 + (5 - \sqrt{2})^2 = 25 + 10\sqrt{2} + 2 + 25 - 10\sqrt{2} + 2 = 54$$

$$43) \sqrt{(3\sqrt{2} - 5)^2} + 3\sqrt{2} = \sqrt{(-(5 - 3\sqrt{2}))^2} + 3\sqrt{2} =$$

$$45) \frac{(2^2 \cdot 2^4)^7}{(2 \cdot 2^6)^6} = \frac{(2^6)^7}{(2^7)^6} = \frac{2^{42}}{2^{42}} = 1 = 5 - \cancel{3\sqrt{2}} + \cancel{3\sqrt{2}} = 5$$

$$47) \frac{1}{5^{-8}} \cdot \frac{1}{5^6} = \frac{1}{5^{-2}} = 25$$

Упростите выражение и найдите его значение(1-68):

1) $\frac{7}{x} - \frac{1}{5x}$ при $x = -0,8$

$$\frac{35-1}{5x} = \frac{34}{5x} = -\frac{34}{4} = -8,5$$

~~2) $\frac{8}{x} - \frac{4}{5x}$ при $x = 1,6$~~

3) $\frac{36}{4a-a^2} - \frac{9}{a}$ при $a = 14$

$$\frac{36 - 36 + 9a}{4a - a^2} = \frac{12a}{56 - 196} = \frac{126}{140} = 0,9$$

~~4) $\frac{42}{7a-a^2} - \frac{6}{a}$ при $a = 2$~~

5) $\frac{1}{x} - \frac{x+y}{xy}$ при $x = \sqrt{32}$, $y = \frac{1}{5}$

$$\frac{y - x - y}{xy} = \frac{\frac{1}{5} - \sqrt{32} - \frac{1}{5}}{\frac{1}{5}\sqrt{32}}$$

-5

$$7) \quad 5b + \frac{8a - 5b^2}{b} \text{ при } a = 8, b = 40 = \frac{5 \cdot 40 + 8 \cdot 8 - 5 \cdot 40^2}{40} = \frac{8 \cdot 8}{40} = 1,6$$

~~$$8) \quad 8a + \frac{8a^2 - 3c}{a} \text{ при } a = 15, c = 12$$~~

$$9) \quad (a + 3)^2 - 2a(3 - 4a) \text{ при } a = -\frac{1}{3} = 0^2 + 6a + 9 - 6a + 8a^2 =$$

$$= 9a^2 + 9 = \frac{9}{9} + 9 = 10$$

~~$$10) \quad (x + 5)^2 - x(x - 1) \text{ при } x = \frac{1}{20}$$~~

$$11) 24ab + 2(-2a + 3b)^2 \text{ при } a = \sqrt{3}, b = \sqrt{6} = \cancel{24ab} + 8a^2 - \cancel{24ab} + 18b^2 =$$

~~$$12) 16ab + (-5a + b)^2 \text{ при } a = \sqrt{10}, b = \sqrt{5} = 24 + 168 = 192$$~~

$$13) \frac{2c-4}{cd-2d} \text{ при } c=0,5; d=5 = \frac{\cancel{2(c-2)}}{d(\cancel{c-2})} = 0,4$$

~~$$14) \frac{xy+3y}{5x+15} \text{ при } x=7; y=6$$~~

$$15) \frac{a^2-4}{2a^2+4a} \text{ при } a=0,5 = \frac{(a-2)(\cancel{a+2})}{2a(\cancel{a+2})} = \frac{-1,5}{1} = -1,5$$

~~$$16) \frac{a^2-9}{6a^2-18a} \text{ при } a=0,3$$~~

$$17) \frac{a^2+4a}{a^2+8a+16} \text{ при } a=-2 = \frac{a(\cancel{a+4})}{(a+4)^2} = \frac{-2}{2} = -1$$

29) $(x-6) : \frac{x^2 - 12x + 36}{x+6}$ при $x = -10$

$$\frac{\cancel{(x-6)}^2}{\cancel{(x-6)}(x+6)} = \frac{-16}{-4} = \frac{1}{1} = 0,25$$

$$\frac{x-6}{1} : \frac{x^2 - 12x + 36}{x+6} =$$

$$= \frac{\cancel{(x-6)}}{1} \cdot \frac{(x+6)}{\cancel{(x-6)}^2} = \frac{x+6}{x-6}$$