

$$= \pi r^2 h$$

$$\sqrt{r^2 + h^2} = 60$$

$$60 - h^2$$

$$2 = \frac{\quad}{4}$$

$$V = f(h) = \pi r h \frac{60 - h^2}{4}$$

$$f(h) = \frac{\pi h^3}{4} + 15\pi h$$

$$f'(h) = \frac{3\pi h^2}{4} + 15\pi$$

$$\sqrt{5} V h = -2\sqrt{5}$$



$$\int \frac{dx}{\sqrt{x^2 + a^2}} = \ln|x + \sqrt{x^2 + a^2}| + C$$

$$\int \frac{\sqrt{x^2 + a^2}}{x} dx = \sqrt{x^2 + a^2} - a \ln|x + \sqrt{x^2 + a^2}| + C$$



$$\int x^2 \sqrt{x^2 + a^2} dx = \frac{x}{8} (2x^2 + a^2) \sqrt{x^2 + a^2} - \frac{a^2}{8} \ln|x + \sqrt{x^2 + a^2}| + C$$

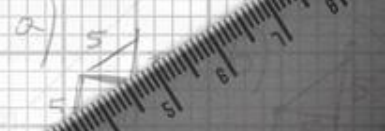
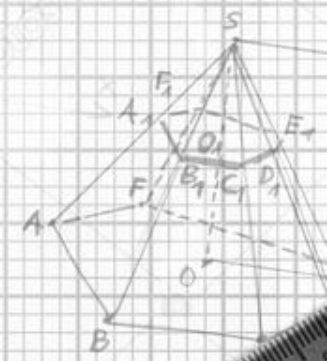
$$\int \frac{x^2}{\sqrt{x^2 + a^2}} dx = \frac{x}{2} \sqrt{x^2 + a^2} - \frac{a^2}{2} \ln|x + \sqrt{x^2 + a^2}| + C$$

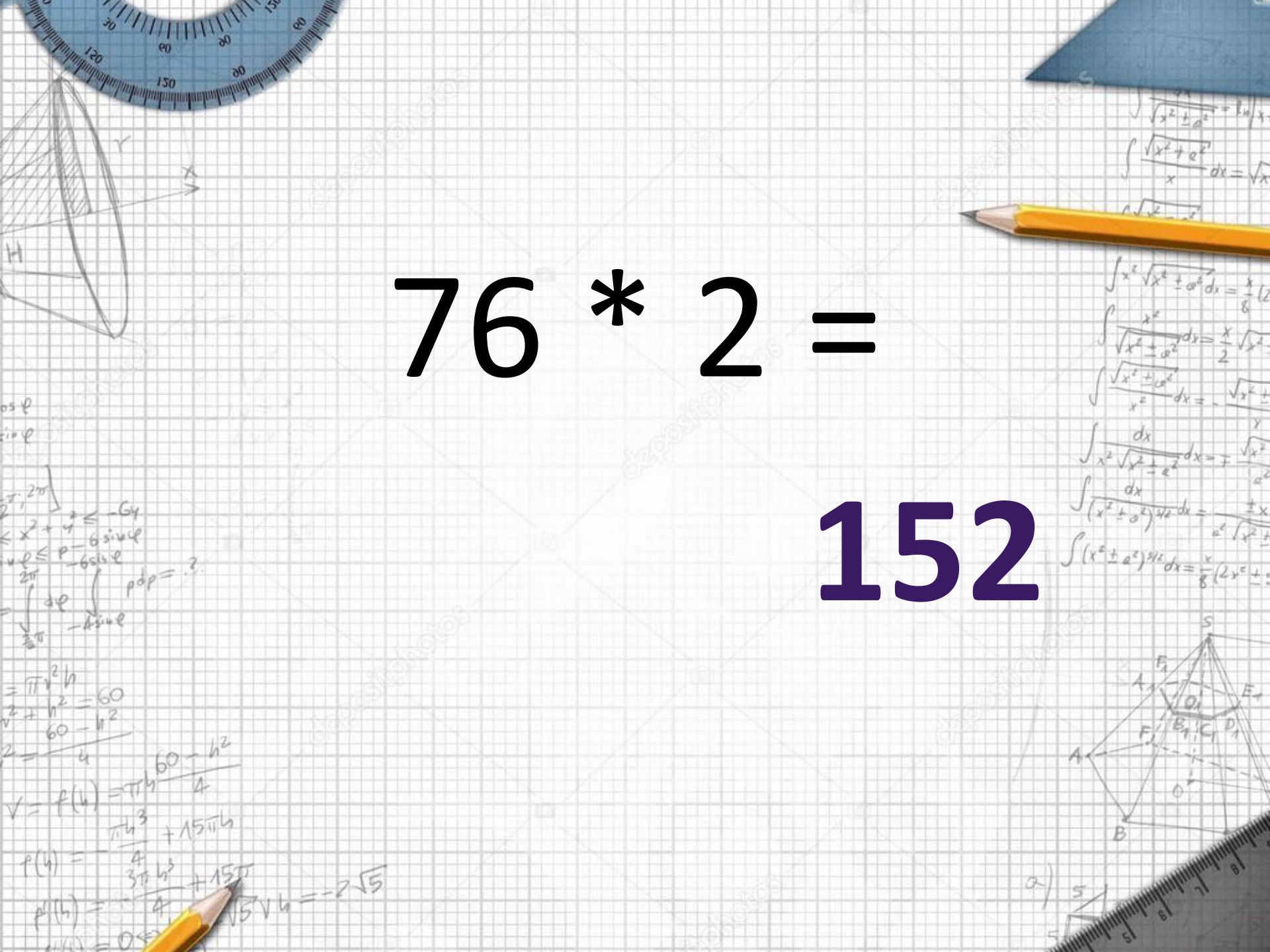
$$\int \frac{\sqrt{x^2 + a^2}}{x^2} dx = -\frac{\sqrt{x^2 + a^2}}{x} - \frac{a^2}{x} \ln|x + \sqrt{x^2 + a^2}| + C$$

$$\int \frac{dx}{x^2 \sqrt{x^2 + a^2}} = -\frac{1}{a^2} \frac{\sqrt{x^2 + a^2}}{x} - \frac{1}{a^2} \ln|x + \sqrt{x^2 + a^2}| + C$$

$$\int \frac{dx}{(x^2 + a^2)^{3/2}} = \frac{x}{a^2 \sqrt{x^2 + a^2}} + \frac{1}{a^2} \ln|x + \sqrt{x^2 + a^2}| + C$$

$$\int (x^2 + a^2)^{3/2} dx = \frac{x}{8} (2x^2 + a^2) \sqrt{x^2 + a^2} - \frac{a^2}{8} \ln|x + \sqrt{x^2 + a^2}| + C$$

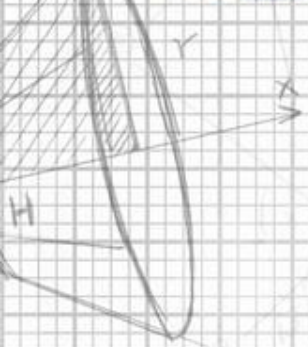



$$76 * 2 =$$

$$152$$

$$108 : 12 =$$

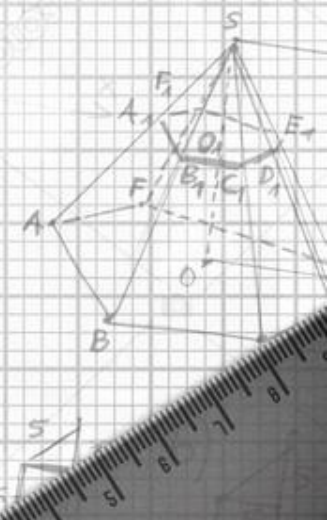
9



Handwritten notes on the left side of the page, including a diagram of a circle with radius r and angle φ . The notes include the equation $x^2 + y^2 = -6x$ and other algebraic expressions.

Handwritten notes at the bottom left, including the volume formula $V = \frac{\pi r^2 h}{3}$ and a derivative calculation $V'(h) = -2\sqrt{5}$.

Handwritten mathematical formulas on the right side of the page, including $\int \frac{dx}{\sqrt{x^2 + a^2}} = \ln|x + \sqrt{x^2 + a^2}| + C$ and $\int \frac{x^2}{\sqrt{x^2 + a^2}} dx = \frac{x}{2} \sqrt{x^2 + a^2} - \frac{a^2}{2} \ln|x + \sqrt{x^2 + a^2}| + C$.

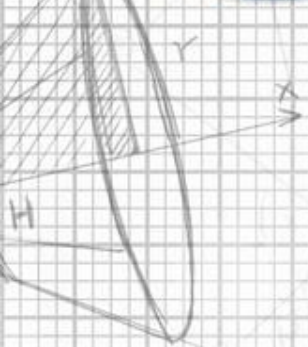


$$(74 - 55) * 4 =$$

76

$$(35 + 50) : 17 =$$

5



Handwritten notes on the left side of the page, including a diagram of a cone and the following equations:
 $x^2 + y^2 \leq -6y$
 $x^2 + y^2 \leq p - 6\sin\varphi$
 $x^2 + y^2 \leq p - 6\sin\varphi$
 $p \sin\varphi = ?$
 $\frac{d\varphi}{\sin\varphi}$

$$= \pi r^2 h$$
$$\sqrt{z} + h^2 = 60$$
$$\frac{60 - h^2}{4}$$

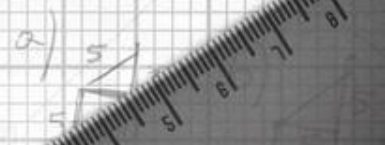
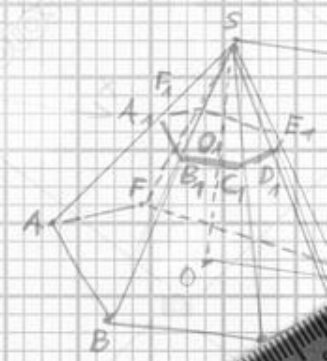
$$V = f(h) = \pi r^2 h \frac{60 - h^2}{4}$$

$$f'(h) = \frac{\pi h^3}{4} + 15\pi h$$

$$f''(h) = \frac{3\pi h^2}{4} + 15\pi$$
$$f''(h) = 0 \Rightarrow \sqrt{15} V h = -2\sqrt{5}$$



Handwritten mathematical formulas on the right side of the page:
 $\int \frac{dx}{\sqrt{x^2 + a^2}} = \ln|x + \sqrt{x^2 + a^2}|$
 $\int \frac{\sqrt{x^2 + a^2}}{x} dx = \sqrt{x^2 + a^2} - a \ln|x + \sqrt{x^2 + a^2}|$
 $\int \frac{x^2}{\sqrt{x^2 + a^2}} dx = \frac{x}{2} \sqrt{x^2 + a^2} - \frac{a^2}{2} \ln|x + \sqrt{x^2 + a^2}|$
 $\int \frac{dx}{x^2 \sqrt{x^2 + a^2}} = -\frac{1}{a^2} \frac{1}{\sqrt{x^2 + a^2}}$
 $\int \frac{dx}{(x^2 + a^2)^{3/2}} = \frac{x}{a^2 \sqrt{x^2 + a^2}} + \frac{1}{a^2} \frac{1}{\sqrt{x^2 + a^2}}$
 $\int (x^2 + a^2)^{3/2} dx = \frac{x}{8} (2x^2 + 5a^2) \sqrt{x^2 + a^2} + \frac{5a^4}{8} \ln|x + \sqrt{x^2 + a^2}|$



$$(88 : 4) * 5 =$$

$$110$$

$$(13 * 6) + 28 =$$

$$106$$

Расшифруйте слово, выполнив
вычисления:

24004 : 4	72009 : 9	3507: 7	40040 : 5	12024 : 6	5656: 8
Р	М	И	Е	Н	З

501 – И

707 – З

8001 – М

8008 – Е

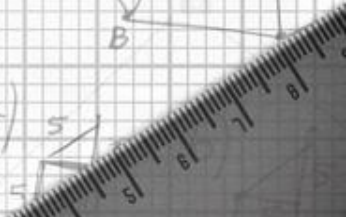
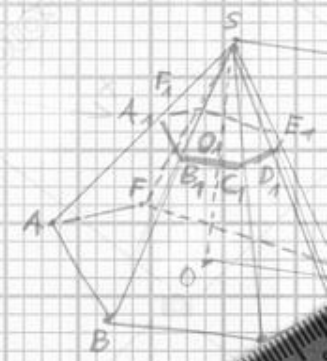
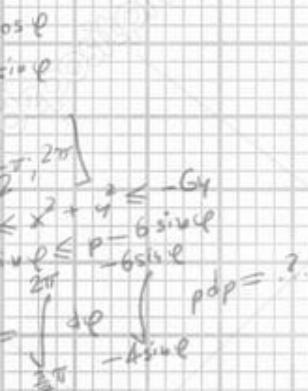
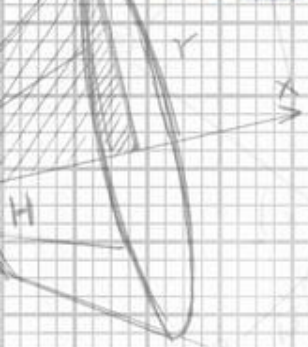
6001 – Р

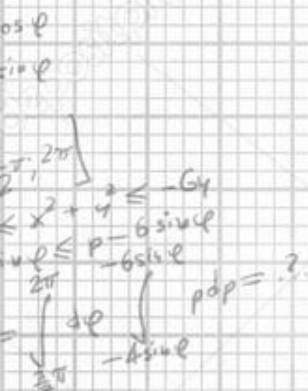
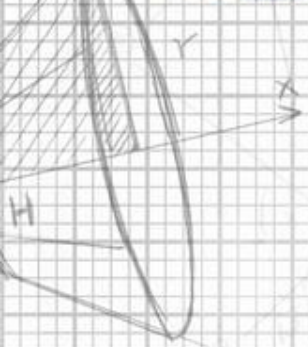
8008 – Е

2004 – Н

501 – И

8008 – Е





$$= \pi r^2 h$$

$$\sqrt{r^2 + h^2} = 60$$

$$60 - h^2$$

$$2 = \frac{\quad}{4}$$

$$V = f(h) = \pi r h \frac{60 - h^2}{4}$$

$$f'(h) = \frac{\pi h^3}{4} + 15\pi h$$

$$f''(h) = \frac{3\pi h^2}{4} + 15\pi$$

$$\sqrt{5} V h = -2\sqrt{5}$$

$$\int \frac{dx}{\sqrt{x^2 + a^2}} = \ln|x + \sqrt{x^2 + a^2}| + C$$

$$\int \frac{\sqrt{x^2 + a^2}}{x} dx = \sqrt{x^2 + a^2} - a \ln|x + \sqrt{x^2 + a^2}| + C$$



$$\int x^2 \sqrt{x^2 + a^2} dx = \frac{x}{8} (2x^2 + a^2) \sqrt{x^2 + a^2} - \frac{a^2}{8} \ln|x + \sqrt{x^2 + a^2}| + C$$

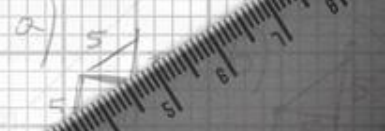
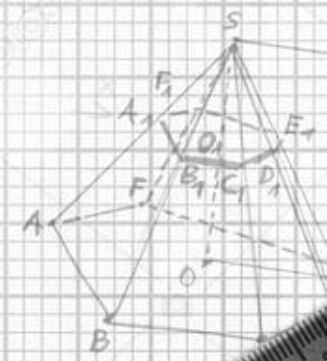
$$\int \frac{x^2}{\sqrt{x^2 + a^2}} dx = \frac{x}{2} \sqrt{x^2 + a^2} - \frac{a^2}{2} \ln|x + \sqrt{x^2 + a^2}| + C$$

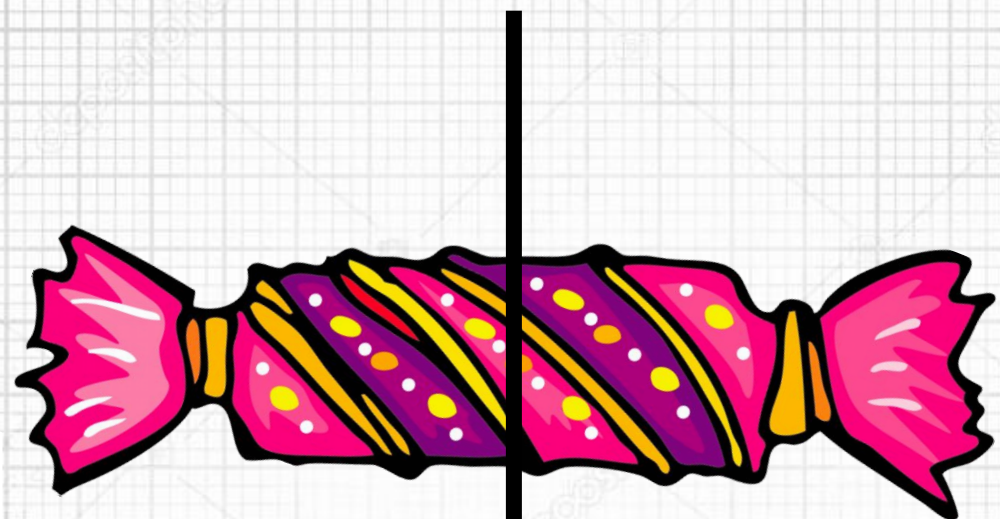
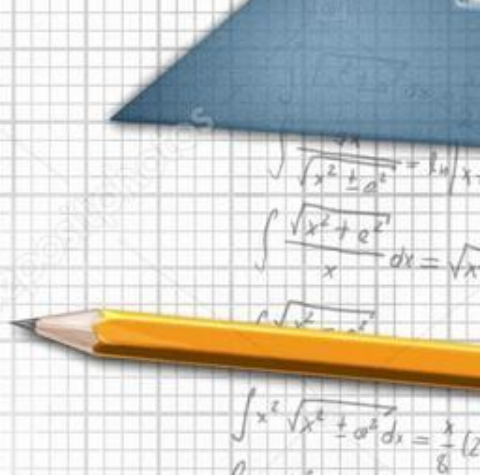
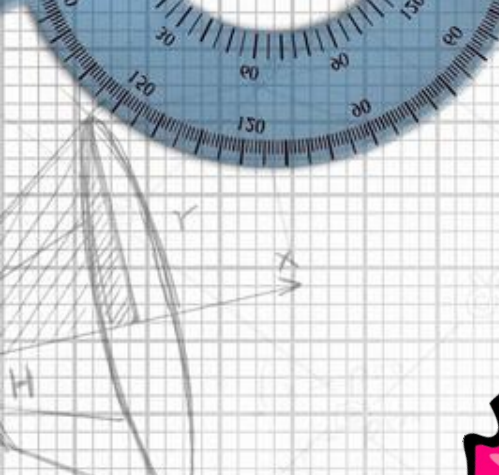
$$\int \frac{\sqrt{x^2 + a^2}}{x^2} dx = -\frac{\sqrt{x^2 + a^2}}{x} + \frac{a^2}{x} + C$$

$$\int \frac{dx}{x^2 \sqrt{x^2 + a^2}} = -\frac{1}{a^2} \frac{\sqrt{x^2 + a^2}}{x} + \frac{1}{a^2} \ln|x + \sqrt{x^2 + a^2}| + C$$

$$\int \frac{dx}{(x^2 + a^2)^{3/2}} = \frac{x}{a^2 \sqrt{x^2 + a^2}} + \frac{1}{a^2} \ln|x + \sqrt{x^2 + a^2}| + C$$

$$\int (x^2 + a^2)^{3/2} dx = \frac{x}{8} (2x^2 + a^2) \sqrt{x^2 + a^2} - \frac{a^2}{8} \ln|x + \sqrt{x^2 + a^2}| + C$$

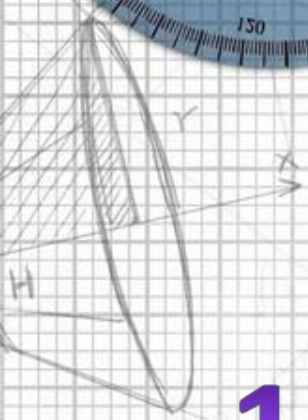




$\frac{1}{2}$

$\frac{1}{2}$





$\frac{1}{4}$

$\frac{1}{4}$



$\frac{1}{4}$

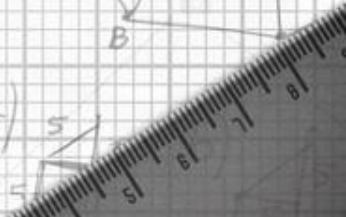
$\frac{1}{4}$

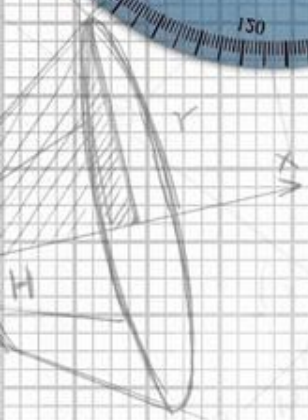


$\int \frac{1}{\sqrt{x^2+a^2}} dx = \ln|x + \sqrt{x^2+a^2}| + C$
 $\int \frac{\sqrt{x^2+e^2}}{x} dx = \sqrt{x^2+e^2} - \frac{e^2}{x} + C$
 $\int \frac{x^2}{\sqrt{x^2+a^2}} dx = \frac{x}{2} \sqrt{x^2+a^2} - \frac{a^2}{2} \ln|x + \sqrt{x^2+a^2}| + C$
 $\int \frac{dx}{\sqrt{x^2+a^2}} = \ln|x + \sqrt{x^2+a^2}| + C$
 $\int \frac{dx}{(x^2+a^2)^{3/2}} = \frac{x}{2a^2 \sqrt{x^2+a^2}} + \frac{1}{2a^2} \ln|x + \sqrt{x^2+a^2}| + C$
 $\int \frac{dx}{(x^2+a^2)^{5/2}} = \frac{x}{8a^4 \sqrt{x^2+a^2}} + \frac{3x}{8a^4} \ln|x + \sqrt{x^2+a^2}| + \frac{3}{8a^4} \ln|x + \sqrt{x^2+a^2}| + C$



$\rho(h) = \frac{\pi h^3}{4} + 15\pi h$
 $\rho'(h) = \frac{3\pi h^2}{4} + 15\pi$
 $\rho'(h) = 0 \Rightarrow \sqrt{15} \sqrt{h} = -2\sqrt{5}$





$x^2 + y^2 \leq -6y$
 $x^2 + y^2 + 6y \leq 0$
 $x^2 + (y+3)^2 \leq 9$
 $\rho \cos \varphi = -6 \sin \varphi$
 $\rho = -6 \tan \varphi$
 $\rho^2 = 36 \tan^2 \varphi$
 $\rho = 6 \tan \varphi$

7/3



$p(h) = \dots$
 $p'(h) = \dots$
 $\sqrt{5}Vh = -2\sqrt{5}$



7 КГ

7/3



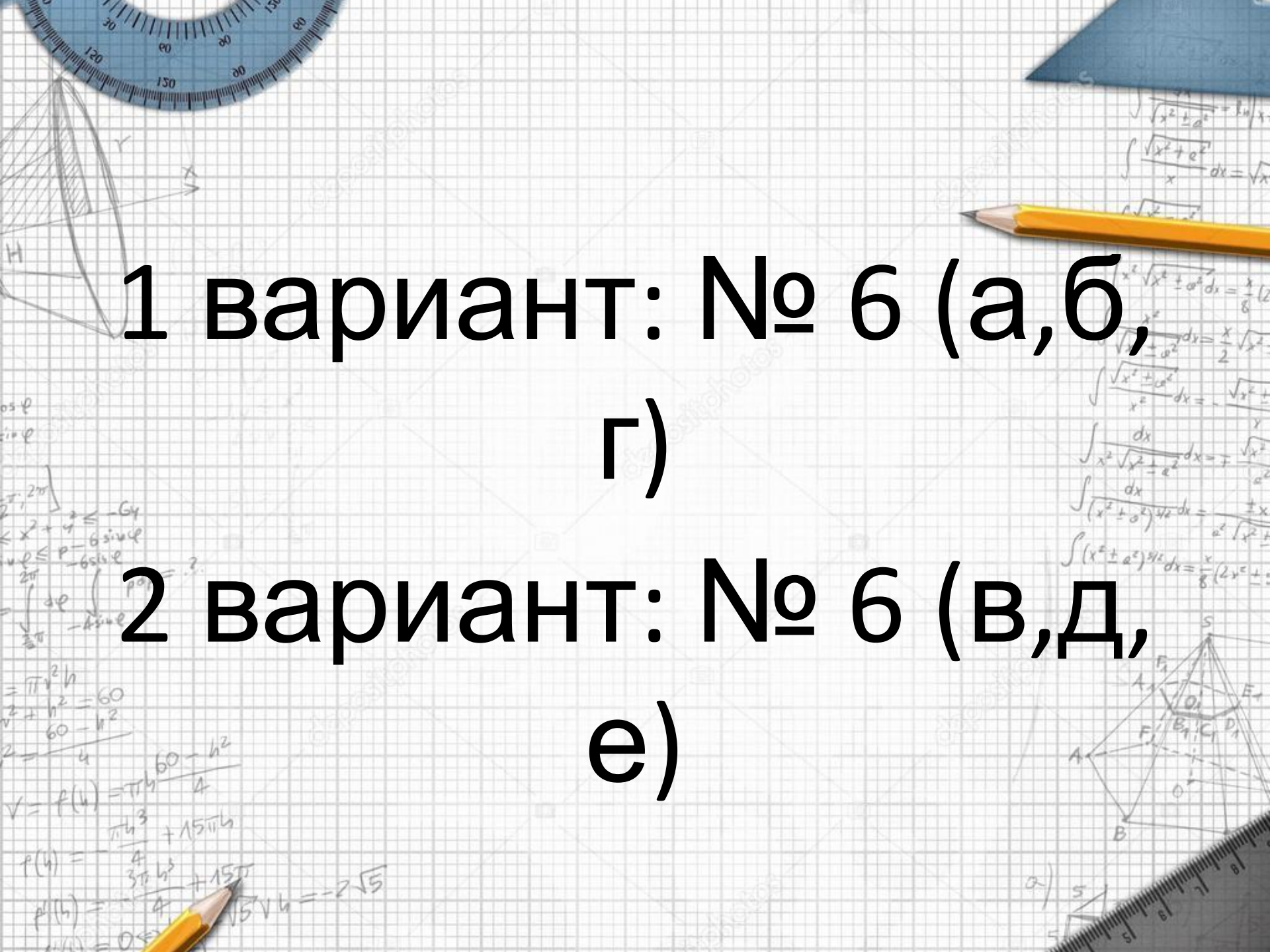
7/3



$\int \frac{dx}{x^2 \sqrt{x^2 + a^2}} = \frac{1}{a^2} \arctan \frac{x}{a}$
 $\int \frac{x^2}{\sqrt{x^2 + a^2}} dx = \frac{x}{2} \sqrt{x^2 + a^2} - \frac{a^2}{2} \arctan \frac{x}{a}$
 $\int \frac{\sqrt{x^2 + a^2}}{x^2} dx = -\frac{\sqrt{x^2 + a^2}}{x} + \frac{a^2}{x^2} \arctan \frac{x}{a}$
 $\int \frac{dx}{x^2 \sqrt{x^2 + a^2}} = -\frac{1}{x} \sqrt{x^2 + a^2} + \frac{a^2}{x} \arctan \frac{x}{a}$
 $\int \frac{dx}{(x^2 + a^2)^{3/2}} = \frac{x}{2a^2 \sqrt{x^2 + a^2}} + \frac{1}{2a^2} \arctan \frac{x}{a}$

Алгоритм нахождения n -й доли единицы

1. Разделить целую единицу на n равных части.
2. Взять одну из равных частей



1 вариант: № 6 (а, б,
г)

2 вариант: № 6 (в, д,
е)