

$$= \pi r^2 h$$

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

$$60 - h^2$$

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

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

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

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

$$f''(h) = 0 \Rightarrow \sqrt{15} V h = -2\sqrt{5}$$



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

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



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

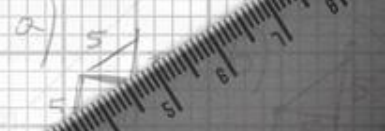
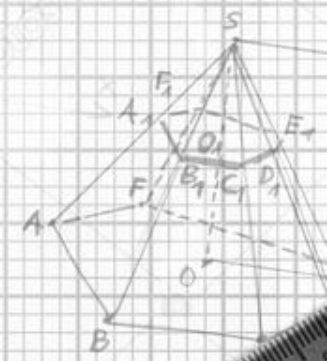
$$\int \frac{x^2}{\sqrt{x^2 + a^2}} dx = \frac{x}{2} \sqrt{x^2 + a^2} - \frac{a^2}{2} \ln|x + \sqrt{x^2 + a^2}| + C$$

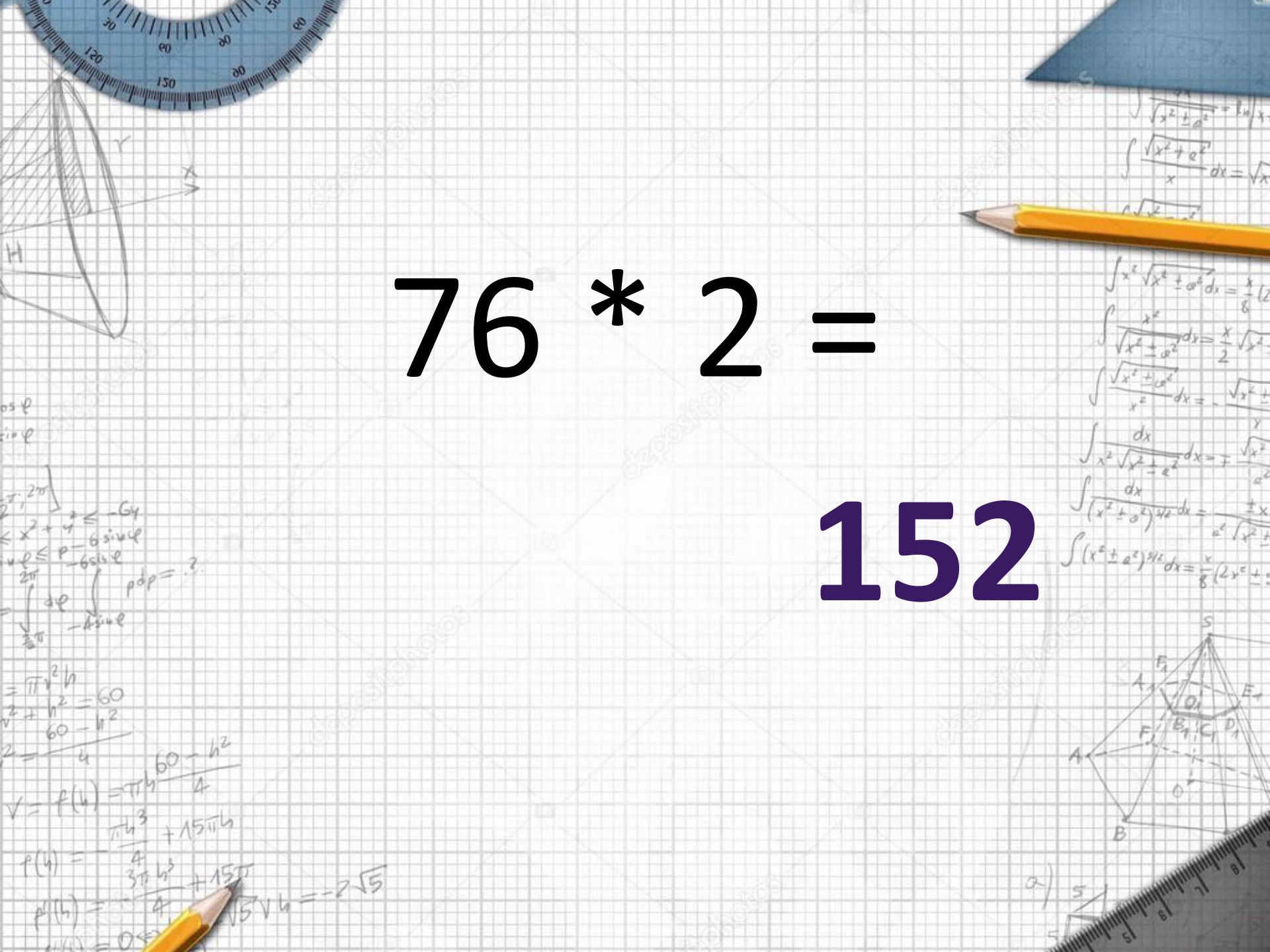
$$\int \frac{\sqrt{x^2 + a^2}}{x^2} dx = -\frac{\sqrt{x^2 + a^2}}{x} - \frac{a^2}{x} \ln|x + \sqrt{x^2 + a^2}| + C$$

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

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

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

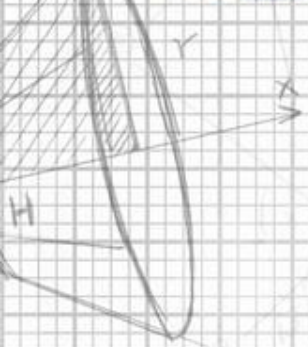



$$76 * 2 =$$

$$152$$

$$108 : 12 =$$

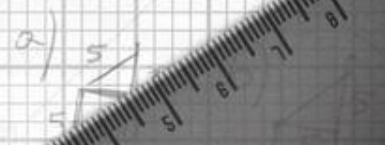
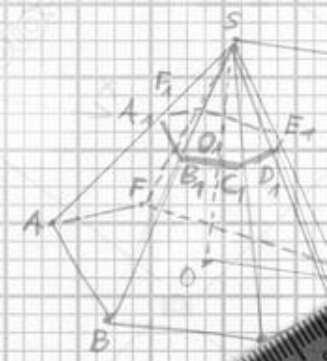
9



Handwritten mathematical notes including:
 $x^2 + y^2 \leq -6x$
 $r \leq p - 6 \sin \varphi$
 $r \leq p - 6 \sin \varphi$
 $p \sin \varphi = ?$
 $r = 2p \sin \varphi$
 $r = 2p \sin \varphi$

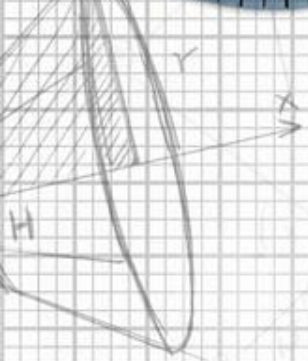
Handwritten mathematical notes including:
 $= \pi r^2 h$
 $r^2 + h^2 = 60$
 $60 - h^2$
 $2 = \frac{60 - h^2}{4}$
 $V = f(h) = \pi r h = \frac{\pi h (60 - h^2)}{4}$
 $f'(h) = \frac{\pi h^3}{4} + 15\pi h$
 $f''(h) = \frac{3\pi h^2}{4} + 15\pi$
 $f''(h) = 0 \Rightarrow \sqrt{5} V h = -2\sqrt{5}$

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



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

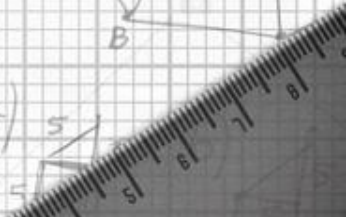
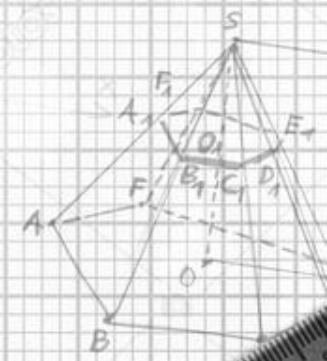
76



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

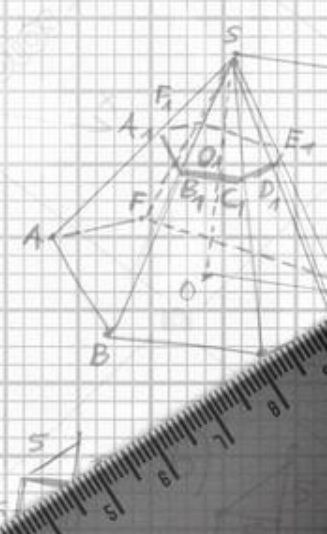
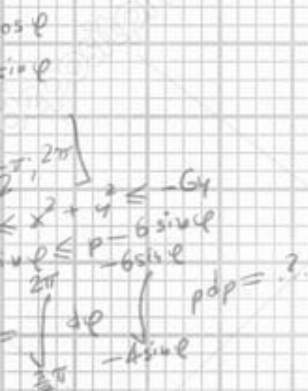
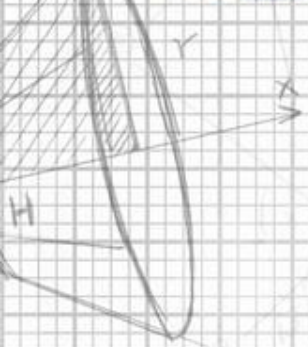
Handwritten mathematical work on the bottom left, including the volume formula $V = \frac{\pi r^2 h}{3}$ and the derivative $V'(h) = -2\sqrt{5}$.

Handwritten mathematical formulas on the right side of the grid, including $\int \frac{1}{\sqrt{x^2 + a^2}} dx = \ln|x + \sqrt{x^2 + a^2}| + C$ and $\int \frac{1}{x^2 \sqrt{x^2 + a^2}} dx = -\frac{1}{a^2} \frac{1}{x} + \frac{1}{a^2} \int \frac{1}{\sqrt{x^2 + a^2}} dx$.



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

5



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

$$110$$

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

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

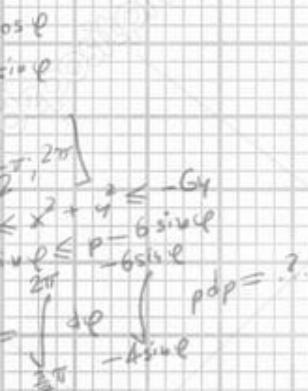
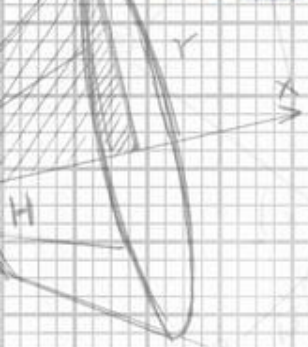
6001 – Р

8008 – Е

2004 – Н

501 – И

8008 – Е

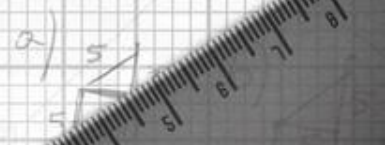
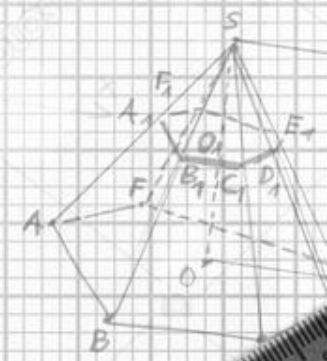


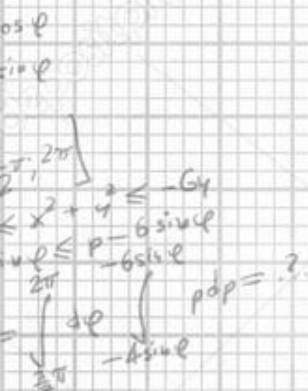
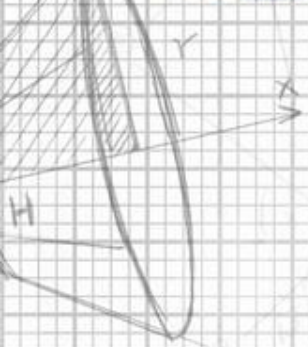
$$= \pi r^2 h$$
$$r^2 + h^2 = 60$$
$$60 - h^2$$
$$2 = \frac{4}{h}$$

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

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

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





$$= \pi r^2 h$$

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

$$60 - h^2$$

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

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

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

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

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



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

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



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

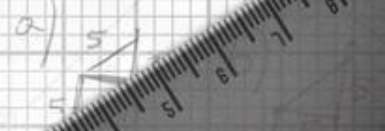
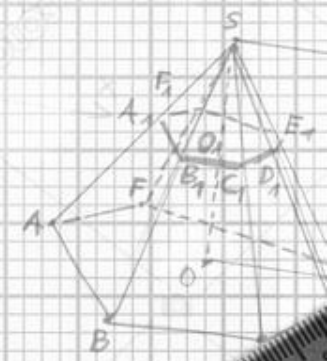
$$\int \frac{x^2}{\sqrt{x^2 + a^2}} dx = \frac{x}{2} \sqrt{x^2 + a^2} - \frac{a^2}{2} \ln|x + \sqrt{x^2 + a^2}| + C$$

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

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

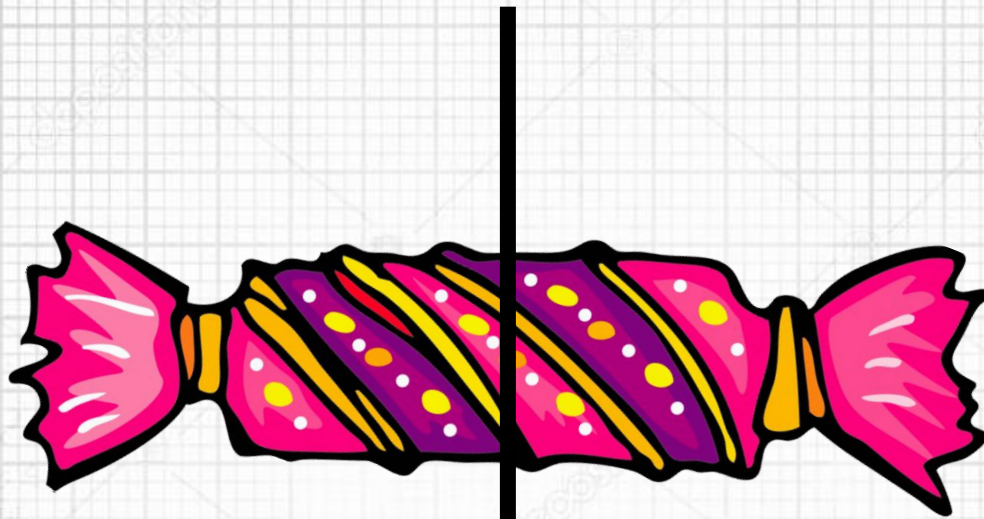
$$\int \frac{dx}{(x^2 + a^2)^{3/2}} = \frac{x}{a^2 \sqrt{x^2 + a^2}} + \frac{1}{a^2} \ln|x + \sqrt{x^2 + a^2}| + C$$

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





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

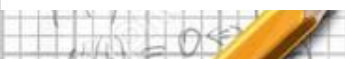


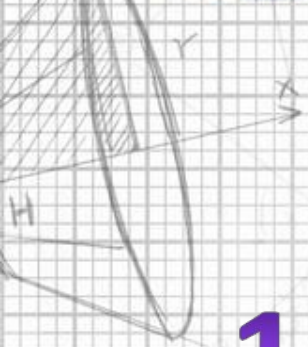
$\frac{1}{2}$

$\frac{1}{2}$



$\sqrt{b} = -2\sqrt{5}$





$\frac{1}{4}$



$\frac{1}{4}$



$\frac{1}{4}$

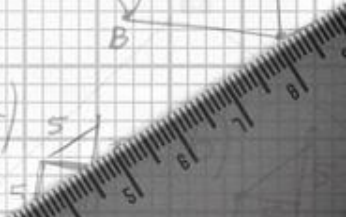


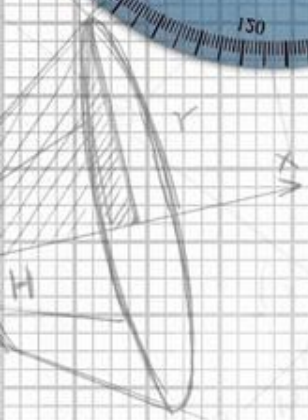
$\frac{1}{4}$



Handwritten mathematical formulas including $\int \frac{1}{\sqrt{x^2+a^2}} dx = \ln|x + \sqrt{x^2+a^2}| + C$, $\int \frac{x^2}{\sqrt{x^2+a^2}} dx = \frac{x}{2}\sqrt{x^2+a^2} - \frac{a^2}{2}\ln|x + \sqrt{x^2+a^2}| + C$, and $\int \frac{dx}{\sqrt{x^2+a^2}} = \ln|x + \sqrt{x^2+a^2}| + C$.

Handwritten mathematical notes including $\rho(h) = \frac{\pi h^3}{4} + 15\pi h$, $\rho'(h) = \frac{3\pi h^2}{4} + 15\pi$, and $\rho'(h) = 0 \Rightarrow \sqrt{15} \sqrt{h} = -2\sqrt{5}$.





$\cos \varphi$
 $\sin \varphi$
 $x^2 + y^2 \leq -Gx$
 $x \leq -G \sin \varphi$
 $y \leq -G \cos \varphi$
 $\rho \cos \varphi = ?$

$= \pi r^2 h$
 $\sqrt{z^2 + h^2} = 60$
 $z = \frac{4}{5}$
 $v = f(h)$
 $f'(h) =$

7/3



$f'(h) = \frac{30h + 120}{4}$
 $\sqrt{5}v h = -2\sqrt{5}$
 $f''(h) = 0$



7 КГ

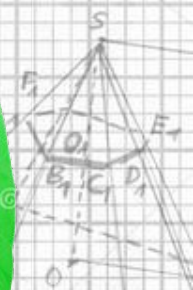
7/3



7/3

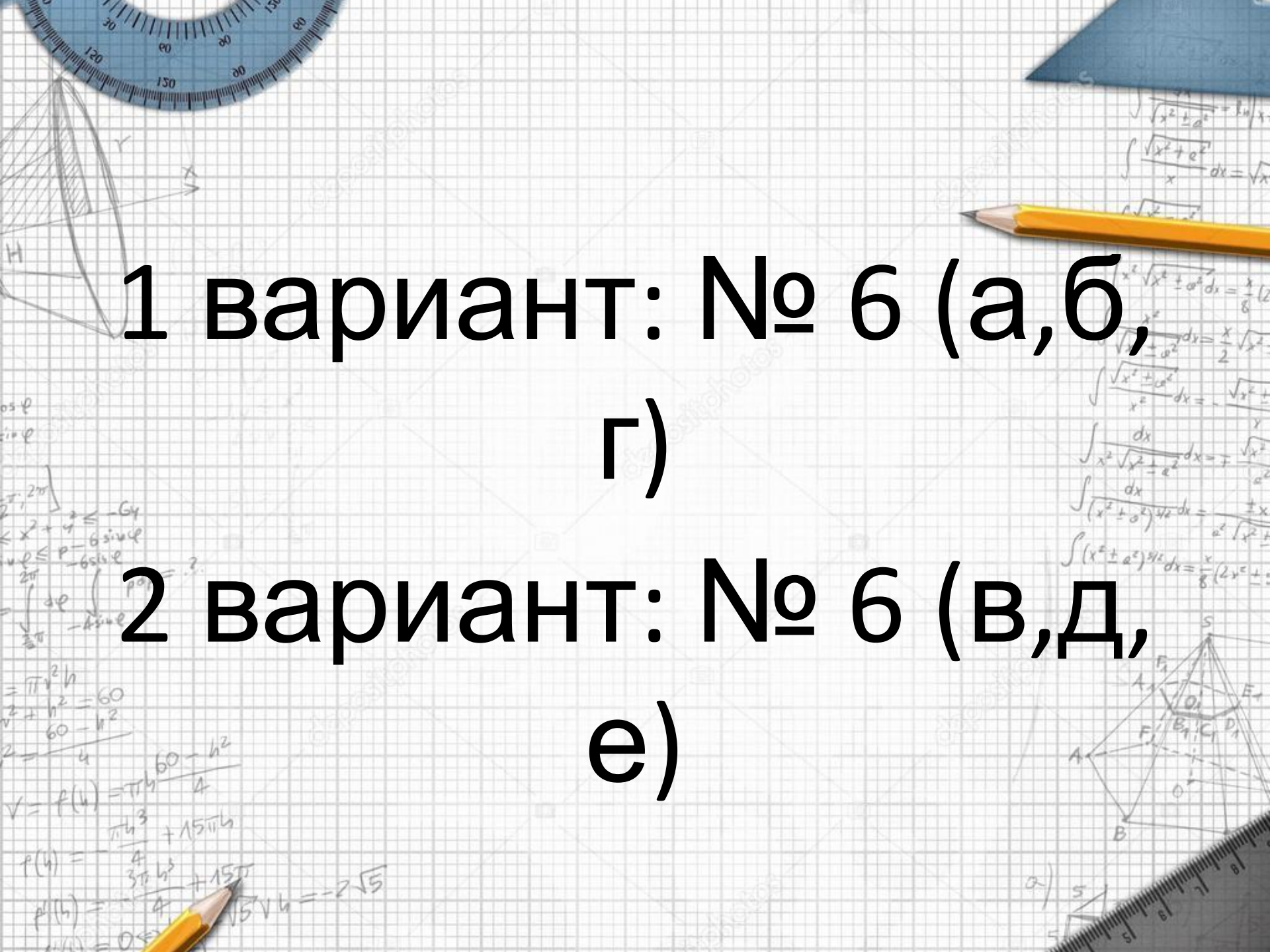


$\int \frac{dx}{\sqrt{x^2 + a^2}} = \ln |x + \sqrt{x^2 + a^2}| + C$
 $\int \frac{\sqrt{x^2 + a^2}}{x} dx = \sqrt{x^2 + a^2} - a \ln |x + \sqrt{x^2 + a^2}| + C$
 $\int \frac{x^2}{\sqrt{x^2 + a^2}} dx = \frac{x}{2} \sqrt{x^2 + a^2} - \frac{a^2}{2} \ln |x + \sqrt{x^2 + a^2}| + C$
 $\int \frac{dx}{(x^2 +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



Алгоритм нахождения n -й доли единицы

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



1 вариант: № 6 (а, б,
г)

2 вариант: № 6 (в, д,
е)