



$$P(x) = 6x^7 + \dots + 15$$

$$15 \Rightarrow \pm 1, \pm 3, \pm 5, \pm 15$$

$$6 \Rightarrow 1, 2, 3, 6$$

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$$Q: \frac{\pm 1}{1}, \frac{\pm 3}{1}, \dots, \frac{\pm 15}{6}$$

$$\frac{P(x)}{x-6} = \boxed{Q(x)}$$

$$P(x) = 4x^8 - 2x^5 + 2x^2 - x$$
$$= (x-0) \cdot \underbrace{(4x^7 - \dots - 1)}$$

$$\frac{x^2 + 3x - 2}{(x+3)^3} = \frac{A}{(x+3)^3} + \frac{B}{(x+3)^2} + \frac{C}{x+3}$$

$$| x^2 + 3x - 2 = A + B \cdot (x+3) + C \cdot (x+3)^2$$

· (x+3)<sup>3</sup>

⊗

$x^0$ :

$$-2 = A + 3B + 9C$$

$x^1$ :

$$3 = B + 6C$$

$x^2$ :

$$1 = C$$

$$\boxed{x = -3} \Rightarrow 9 - 9 - 2 = A + B \cdot 0 + C \cdot 0$$
$$A = -2$$

$$\frac{1}{a_n} \cdot \frac{1}{(x-3)^3 \cdot x^5 \cdot (x^2+x+1)^2}$$

$$\frac{P(x)}{(x-\alpha)^k \cdot Q(x)} - \frac{A}{(x-\alpha)^k} + \frac{A}{(x-\alpha)^k}$$

$$\frac{P(x) - A \cdot Q(x)}{(x-\alpha)^k \cdot Q(x)}$$



$$P(x) - \frac{P(\alpha)}{Q(\alpha)} \cdot Q(x) \Big|_{x=\alpha} =$$
$$= P(\alpha) - \frac{P(\alpha)}{\cancel{Q(\alpha)}} \cdot \cancel{Q(\alpha)} = \underline{\underline{0}}$$

$$\frac{Q_2(x)}{(x-\alpha)^{k-1} \cdot Q_1(x)}$$

$$\begin{aligned}
 & \frac{P(x)}{x^2 \cdot (x-3) \cdot (x+4)^3} = \frac{A}{x^2} + \frac{\cancel{A}}{x} + \\
 & + \frac{C}{x-3} + \frac{D}{(x+4)^3} + \frac{E}{(x+4)^2} + \frac{F}{(x+4)}
 \end{aligned}$$

$$P(x)$$

$$(x-1)^2 (x+5) (x^2+1)^3 (x^2+x+1)$$

$$= \frac{A}{(x-1)^2} + \frac{B}{(x-1)^1} + \frac{C}{x+5} + \frac{Dx+E}{(x^2+1)^3} +$$

$$+ \frac{Fx+G}{(x^2+1)^2} + \frac{Hx+I}{x^2+1} + \frac{Jx+K}{x^2+x+1}$$

<del>x</del>	0	$\frac{\pi}{6}$	$\frac{\pi}{4}$	$\frac{\pi}{3}$	$\frac{\pi}{2}$
$\sin x$	$\frac{\sqrt{0}}{2}$	$\frac{\sqrt{1}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{4}}{2}$

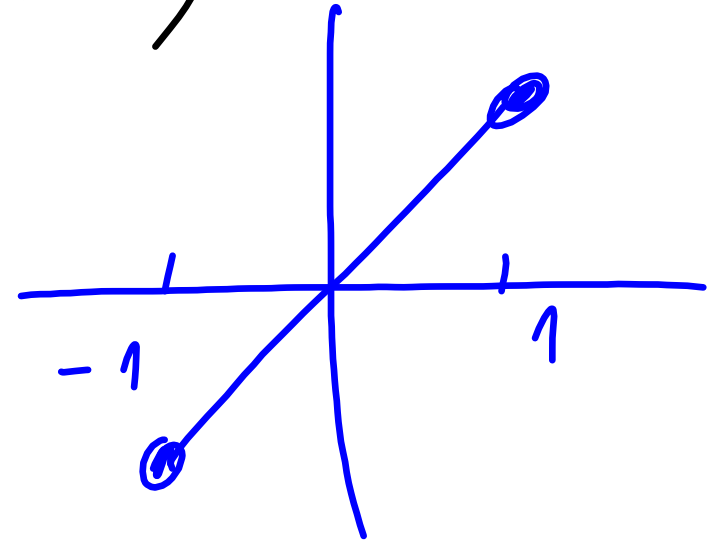
$$\sin^2 x = \frac{1 - \cos 2x}{2} =$$

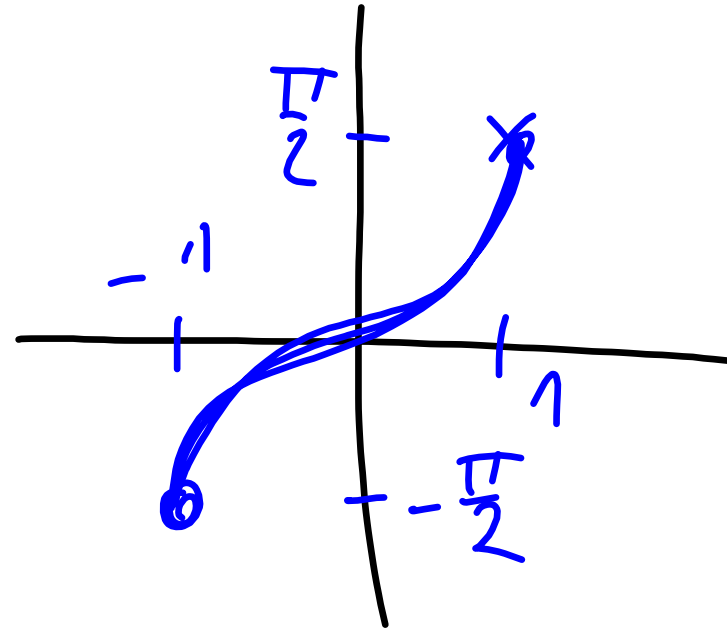
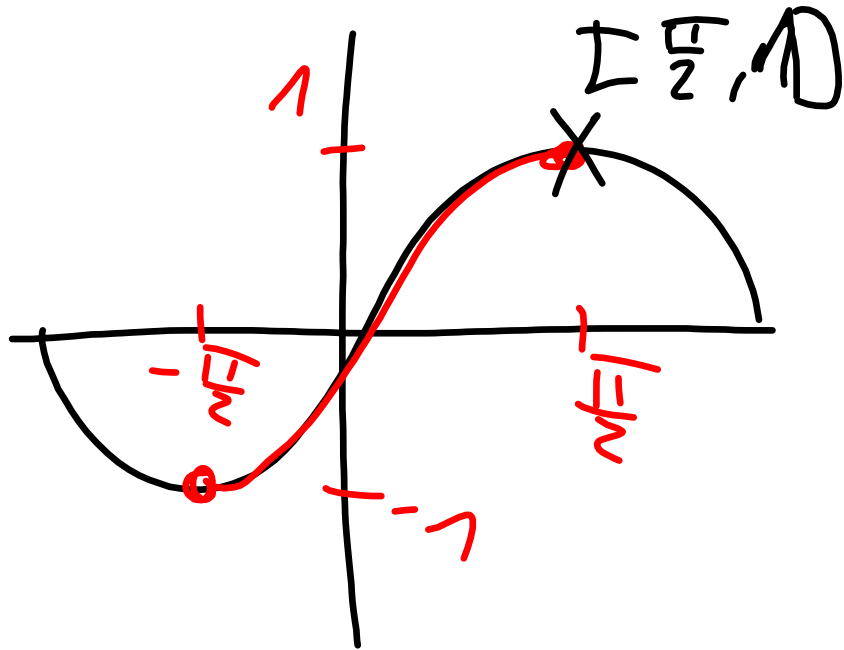
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$$= \frac{1}{2} \cdot (1 - \cos 2x)$$

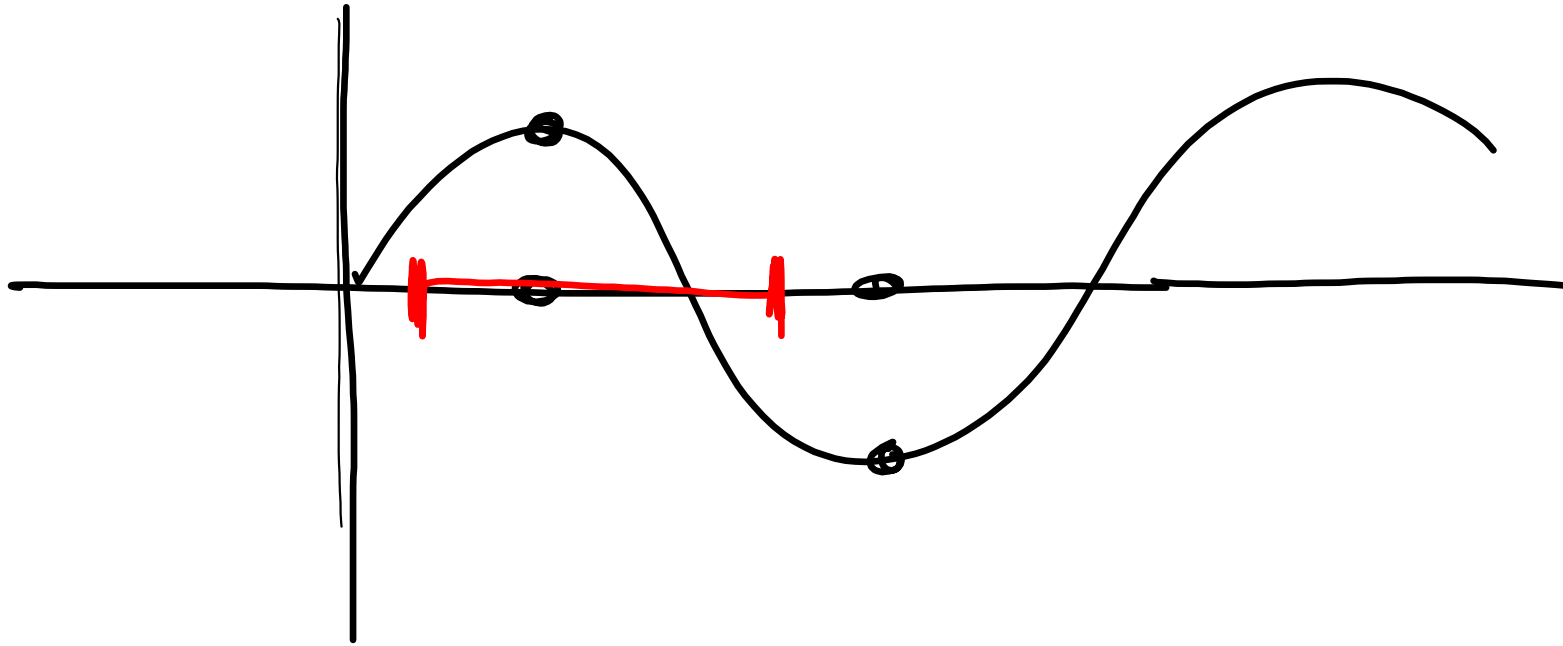
$$f(x) = \sin(\arcsin x) = x$$

$$D(f) = [-1, 1]$$







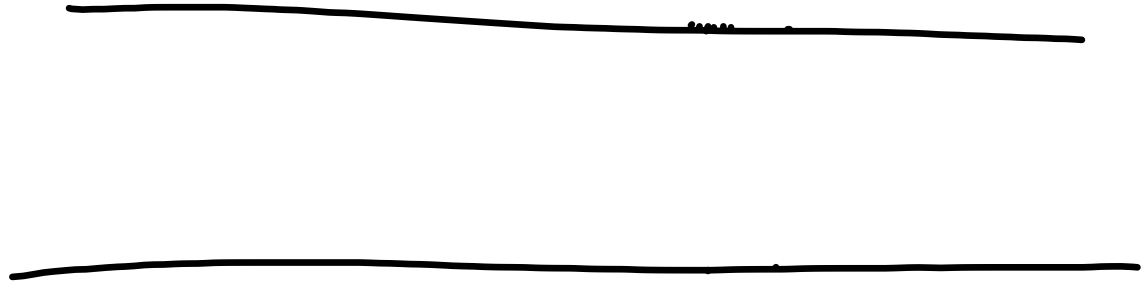


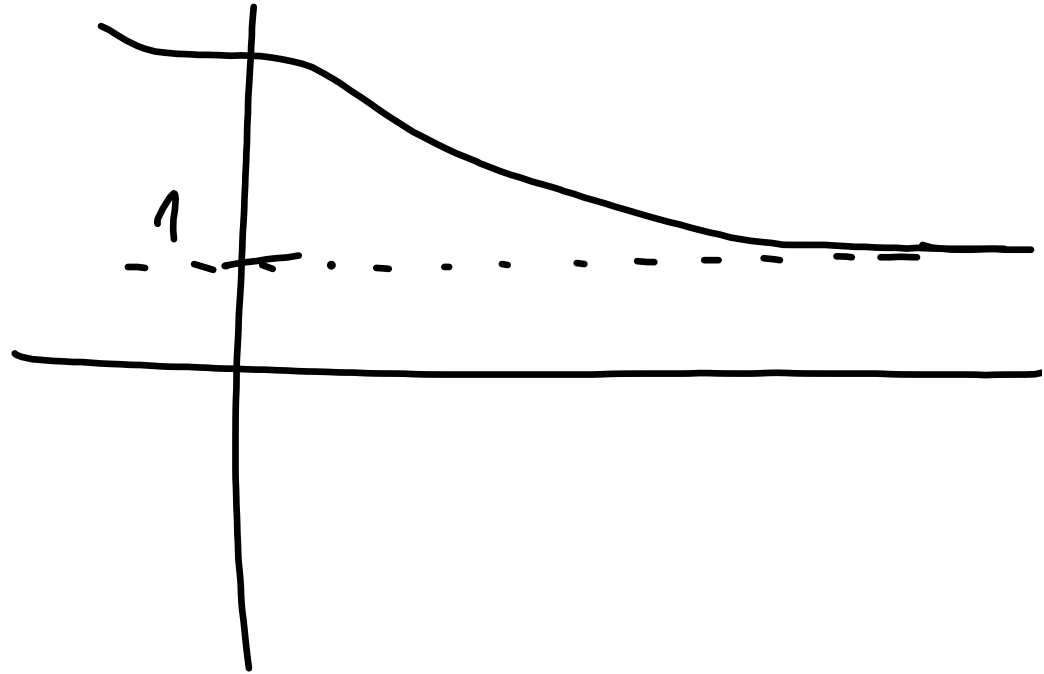
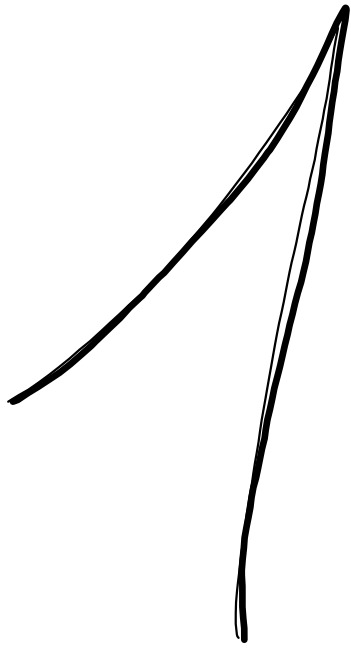
$$X^3 \cdot X^2 = XXX \cdot XX = X^5$$
$$(X^3)^2 = XXX \cdot XXX = X^6$$

$$\cancel{x}^r = e^{\ln(x^r)} = e^{r \cdot \ln x}$$

$$\text{id } x = x$$

$$(\sqrt{x})^2 = x = \text{id}(x)$$

$\mathcal{K}(x)$ 



$$\frac{0}{0}$$

$$\frac{x-5}{(x-5)^2} = \frac{1}{x-5}$$

$$\frac{(x-5)^2}{x-5} = x-5 = 0$$



$$\frac{1}{x-5} \Big|_{x=5}$$

$$\lim_{x \rightarrow 5^{\pm}} \frac{1}{x-5} = \frac{1}{5^{\pm}-5} = \frac{1}{0^{\pm}}$$

A number line diagram illustrating the limit process. A horizontal line has a tick mark at 5. A green arrow points from the left towards 5, and a red arrow points from the right towards 5. To the right of 5, there are two vertical lines: a green one labeled  $-\infty$  and a red one labeled  $+\infty$ .

$$\frac{1}{\frac{1}{1000}} = 1000$$