

① $x^3 - 1 = (x-1)(x^2+x+1)$
 $x^3 - 1 = 0 \Rightarrow x = 1$
 $x^3 - 1 = 0 \Rightarrow x^2 + x + 1 = 0$
 $x = \frac{-1 \pm \sqrt{1-4}}{2} = \frac{-1 \pm \sqrt{-3}}{2}$

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③ $\cos x = \frac{1}{2}$
 $x = \pm \frac{\pi}{3} + 2k\pi$
 $\sin x = -\frac{1}{2}$
 $x = -\frac{\pi}{6} + 2k\pi$

④ $\log \sqrt{x-1} > 0 \Rightarrow x-1 > 1 \Rightarrow x > 2$

⑤ $(n-1)(n-2) > 0$
 $n < 1$ or $n > 2$
 $(n-1)(n-2) < 0$
 $1 < n < 2$

⑥ $(n-1)(n-2) < 0$
 $1 < n < 2$

⑦ $(n-1)(n-2) \geq 0$
 $n \leq 1$ or $n \geq 2$

⑧ $x^3 - 3x > 0 \Rightarrow x(x^2 - 3) > 0$
 $x > \sqrt{3}$ or $x < -\sqrt{3}$

⑨ $(n-1)(n-2) > 0$
 $n < 1$ or $n > 2$

⑩ $y = \frac{n(n-1)}{n(n+1)}$
 $y = \frac{n-1}{n+1}$

⑪ $f(n) = 0 \Rightarrow n = 0$
 $f(n) \neq 0 \Rightarrow n \neq 0$

