

Sequences

① Suppose $f: \mathbb{R} \rightarrow \mathbb{R}$ is such that $f(0)=1$, $f(1)=4$, $f(2)=-3$, $f(3)=2$, and $f(4)=7$. What is $\sum_{i=1}^3 f(i)$?

② What is an arithmetic sequence?

What's the 10th term of $2, 7, 12, 17, \dots$?

What's the sum of the first 10 terms?

③ What is a geometric sequence?

What's the 100th term of $-20, -4, -\frac{4}{5}, -\frac{4}{25}, \dots$?

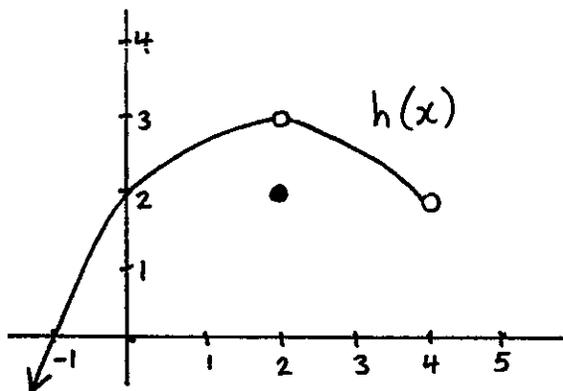
What's the sum of every term?

Functions

④ What are the implied domains of $5x^3 - 4x^2 + 2x - 3$ and $\frac{3x^7 - 16x^4 - 2x^2 + 1}{5x - 10}$?

⑤ $f(x) = 2x - 3$ and $g(x) = 13x^7$. Find $g \circ f(x)$.

⑥



What's $h(2)$?

What's the domain of h ?

What's the range of h ?

What's the y -intercept of the graph of h ?

What are the x -intercepts of the graph of h ?

Counting-

⑦ What does "options multiply" mean?

⑧ Match the number on the right with what it counts on the left.

of ways to arrange
n objects

$$\frac{n!}{(n-k)!}$$

of ways to choose k objects
from a set of n objects

$$n!$$

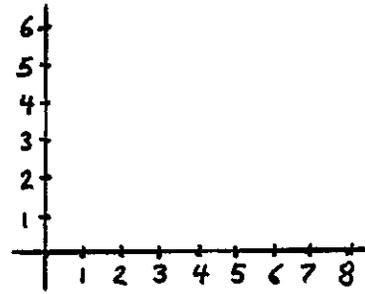
of ways to choose and arrange
k objects from a set of n objects

$$\binom{n}{k}$$

⑨ Use the Binomial Theorem and Pascal's triangle to write out $(x+y)^5$.

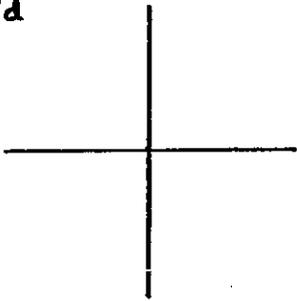
Graphing

⑩ Graph $g: \{5, 7\} \rightarrow \mathbb{R}$ where $g(x) = 2x - 8$.

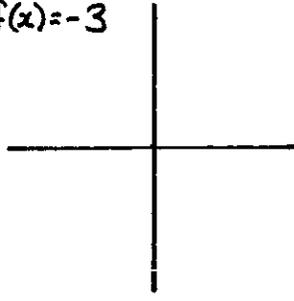


⑪ Graph the following functions:

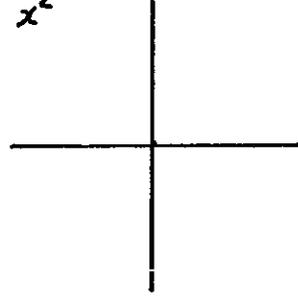
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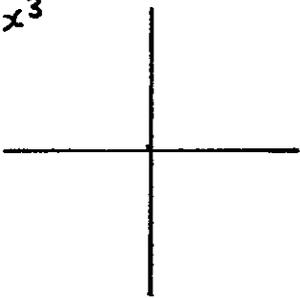
$f(x) = -3$



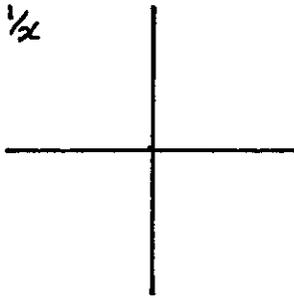
x^2



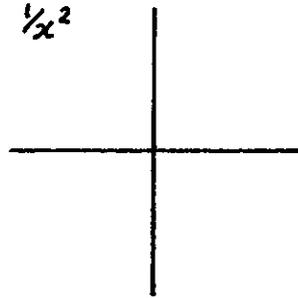
x^3



$\frac{1}{x}$



$\frac{1}{x^2}$



⑫ Graph $f: [-1, 1) \rightarrow \mathbb{R}$, $f(x) = x^3$.

