

Homework 22.1

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Simplify each expression.

1) $(-3p + 1 - 7p^4) + (-3p^4 - 6 + 3p)$

$$\begin{array}{r} -7p^4 - 3p + 1 \\ -3p^4 + 3p - 6 \\ \hline -10p^4 - 5 \end{array}$$

2) $(-5x^4 + 2x^3 + 8x) + (4x - 7x^4 - 7x^3)$

$$\begin{array}{r} -5x^4 + 2x^3 + 8x \\ -7x^4 - 7x^3 + 4x \\ \hline -12x^4 - 5x^3 + 12x \end{array}$$

3) $(-6r^3 - 4r^2 - 2) - (-6r^2 - 3r^4 - 7r^3)$

$$\begin{array}{r} -6r^3 - 4r^2 - 2 + 6r^2 + 3r^4 + 7r^3 \\ + 3r^4 + 7r^3 + 6r^2 \\ \hline 3r^4 + r^3 + 2r^2 - 2 \end{array}$$

4) $(8x^3 - 4x^2 + x^4) + (2x^3 + 6 + 8x^4)$

$$\begin{array}{r} x^4 + 8x^3 - 4x^2 \\ 8x^4 + 2x^3 + 6 \\ \hline 9x^4 + 10x^3 - 4x^2 + 6 \end{array}$$

5) $(3k + 6 + 3k^3) - (-4k - 5k^3 - 6)$

$$\begin{array}{r} 3k + 6 + 3k^3 + 4k + 5k^3 + 6 \\ 3k^3 + 3k + 6 \\ 5k^3 + 4k + 6 \\ \hline 8k^3 + 7k + 12 \end{array}$$

6) $(6m^3 - m + 6m^4) - (2m^3 - m - 6m^4)$

$$\begin{array}{r} 6m^3 - m + 6m^4 - 2m^3 + m + 6m^4 \\ - \{ -2m^4 + 6m^3 - m \\ + 6m^4 - 2m^3 + m \\ \hline 12m^4 + 4m^3 \end{array}$$

What is the domain and range of the relation shown in the table provided? Determine if the relation is a function.

7.

x	y
1	-3
-1	-2
3	3
6	6

8.

x	y
0	-9
2	-1
2	-1
8	-9

Domain: $\{-1, 1, 3, 6\}$

Range: $\{-3, -2, 3, 6\}$

Yes, function

Domain: $\{0, 2, 8\}$

Range: $\{-9, -1\}$

No, Not a function

Determine which set of ordered pairs represent a function.

9. $\{(3, 5), (4, 9), (3, 6), (6, 2)\}$

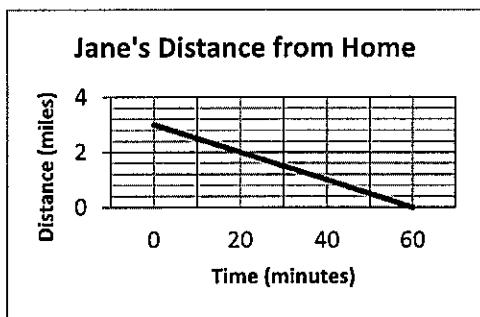
Not a function

10. $\{(4, 6), (3, 4), (5, 1), (10, 2)\}$

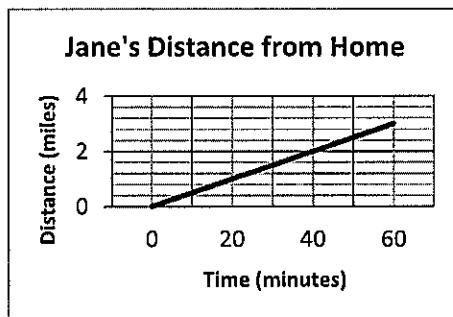
function

11. Jane ran from her home to the corner store at a constant speed. She immediately turned around and ran back home, but at a slower constant speed. Jane ran along a straight path to and from the store. Which graph best represents Jane's distance from her home over time?

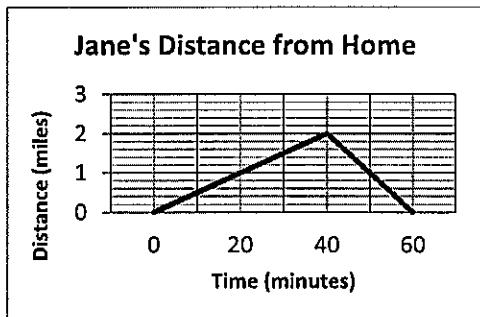
A.



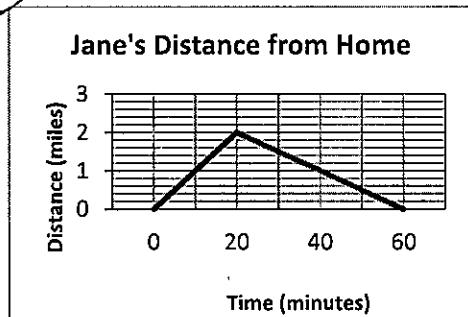
B.



C.



D.



Answers to Homework 22.1

1) $-10p^4 - 5$

5) $8k^3 + 7k + 12$

7. Domain: $\{-1, 1, 3, 6\}$ Range: $\{-3, -2, 3, 6\}$

Function

2) $-12x^4 - 5x^3 + 12x$

6) $12m^4 + 4m^3$

8. Domain: $\{0, 2, 8\}$ Range: $\{-9, -1\}$

Not a Function

3) $3r^4 + r^3 + 2r^2 - 2$

9. Not a Function

11. D.

4) $9x^4 + 10x^3 - 4x^2 + 6$

10. Function