

Name:
Instructor:

Date:
Section:

Practice Set 3.6

Use the choices to fill in the blanks.

always	never	\emptyset	0	false
sometimes	distributive	\mathbb{R}	∞	true

- $f(x) + g(x) = (f + g)(x) = (g + f)(x)$ is a _____ statement for all values of x .
- $f(x) - g(x) = (f - g)(x) = (g - f)(x)$ is a _____ statement unless $f(x) = g(x)$.
- $f(x) / g(x) = (f / g)(x)$ is true for all x , $g(x) \neq$ _____.
- $f(x) \cdot g(x) = (f \cdot g)(x) = (g \cdot f)(x)$ is a _____ statement for all values of x .

Let $f(x) = 2x^2 - 3$ and $g(x) = -2x + 1$. Find the following.

- | | | |
|------------------|-----------------------|-----------|
| 5. $(f + g)(x)$ | 6. $(f - g)(x)$ | 5. _____ |
| | | 6. _____ |
| 7. $(g - f)(x)$ | 8. $f(3) - g(3)$ | 7. _____ |
| | | 8. _____ |
| 9. $g(2) / f(2)$ | 10. $f(1) \cdot g(1)$ | 9. _____ |
| | | 10. _____ |
| 11. $(f + g)(3)$ | 12. $(f - g)(5)$ | 11. _____ |
| | | 12. _____ |
| 13. $(f / g)(0)$ | 14. $(g - f)(4)$ | 13. _____ |
| | | 14. _____ |
| 15. $(g / f)(1)$ | 16. $(f \cdot g)(2)$ | 15. _____ |
| | | 16. _____ |

For each pair of functions find a) $(f + g)(x)$, b) $(f - g)(x)$, and c) $(f \cdot g)(1)$

- | | | |
|--|---|-------------|
| 17. $f(x) = x + 3$
$g(x) = x^2 + x - 1$ | 18. $f(x) = -2x^2 + 3x - 1$
$g(x) = x^3 - x^2 + 4$ | 17.a) _____ |
| | | b) _____ |
| | | c) _____ |
| | | 18.a) _____ |
| | | b) _____ |
| | | c) _____ |

Use the graph to find the value of the following.

19. $(f + g)(0)$

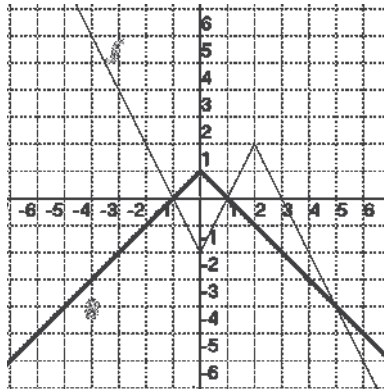
20. $(f / g)(2)$

21. $(f \cdot g)(-4)$

22. $(f - g)(6)$

23. $(g - f)(1)$

24. $(f + g)(-3)$



19. _____

20. _____

21. _____

22. _____

23. _____

24. _____

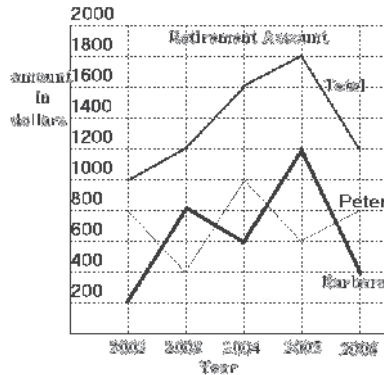
Problem Solving

25. The following stacked line graph shows the amount of money that Peter and Barbara Weber contributed to a joint retirement account for the years 2002 to 2006.

a) Find $(P + B)(2005)$.

b) Find $(P - B)(2002)$.

c) Find $(B - P)(2003)$.



25.a) _____

b) _____

c) _____

d) Find the total amount that Peter and Barbara contributed to the joint retirement account over the five-year period. d) _____

Challenge

26. The following chart shows the total income and total expenditures for Social Security by years. Draw a stacked line graph that shows income I , expenditures E , and the resulting balance for each year $(I - E) = B$. (Disregarding interest)

[Source: www.ssa.gov]

Year	Total Income (in millions)	Total Expenditures (in millions)
1980	\$119,712	\$123,550
1985	\$203,540	\$190,628
1990	\$315,443	\$253,135
1995	\$399,497	\$339,815
2000	\$568,433	\$415,121
2005	\$701,758	\$529,938

