



PROBLEMS AND SOLUTIONS - INTRODUCTION TO FUNCTIONS

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Please Send Questions and Comments to ingrid.stewart@csn.edu. Thank you!

PLEASE NOTE THAT YOU CANNOT ALWAYS USE A CALCULATOR ON THE ACCUPLACER - COLLEGE-LEVEL MATHEMATICS TEST! YOU MUST BE ABLE TO DO SOME PROBLEMS WITHOUT A CALCULATOR!

Problem 1:

Given $f(x) = 2x - 3$, find $f(5)$.

Problem 2:

Given $G(m) = 3 - m^2$, find $G(-1)$.

Problem 3:

Given $g(t) = 5$, find $g(0)$, $g(-10)$, and $g(20)$.

Problem 4:

Given $f(x) = x^a$, find $f(x^a)$.

Problem 5:

Given the function $f(x) = 3x^2 + 4x - 5$, evaluate $f(a)$, $f(-a)$, $f(a + h)$, $f(2x - 3)$, $f(x + h)$.

Problem 6:

Given $f(x) = \sqrt{x - 5} + 4$, find $f(17)$.

Problem 7:

Given $g(x) = 3|2x - 3| - 6$, find $g(1)$.

Problem 8:

Given $h(x) = -(2x + 4)^{\frac{1}{3}} - 3$, find $h(2)$.

Problem 9:

Given $p(x) = -x^2 - 2x + 9$, find $p(3)$.

Problem 10:

Given $k(x) = (x + 8)^{2/3} + 2$, find $k(19)$.

Problem 11:

Given $f(x) = 3x^3 - 5x^2 + x - 3$, find $f(-x)$.

Problem 12:

Find the domain of the function $g(x) = \frac{3}{x^2 + 2x - 15} + x$ in *Set-Builder Notation* over which the function is defined.

Problem 13:

Find the domain of the function $f(x) = \sqrt{3x + 12} - 1$ in *Interval Notation* over which the function is defined.

Problem 14:

Find the domain of the function $g(x) = \sqrt{4 - \frac{1}{2}x}$ in *Interval Notation* over which the function is defined.

Problem 15:

Find the domain of the function $k(x) = 2x - 3$ in *Interval Notation* over which the function is defined.

Problem 16:

Find the domain of the function $f(t) = t^2 - 3t + 1$ in *Interval Notation* over which the function is defined.

Problem 17:

Find the domain of the function $g(t) = 5$ in *Interval Notation* over which the function is defined.

Problem 18:

Find the domain of the function $S(p) = \frac{4 - p}{p^2 + 5}$ in *Interval Notation* over which the function is defined.

Problem 19:

Find the domain of the function $y = x^2 \sqrt{9 - x^2}$ in *Interval Notation* over which the function is defined.

Problem 20:

Find the domain of the function $f(x) = \sqrt[3]{x^2 - 4}$ in *Interval Notation* over which the function is defined.

Problem 21:

Find the domain of $h(x) = -(2x + 4)^{1/3} - 3$ in *Interval Notation* over which the function is defined.

Problem 22:

Find the domain of $k(x) = (x + 8)^{2/3} + 2$ in *Interval Notation* over which the function is defined.

Problem 23:

Find the domain of the absolute value function $g(x) = 3|2x - 3| - 6$ in *Interval Notation* over which the function is defined.

Problem 24 (Linear Function):

The height h of a female is related to the length of her femur f (bone from the hip socket to the knee) by the mathematical model $f = 0.432h - 10.44$. Both h and f are measured in inches. Part of a female skeleton is found in which the femur is 18 inches long. How tall must this woman have been? Express your answer in feet and inches rounded to whole numbers.



SOLUTIONS

You can find detailed solutions below the link for this problem set!

1. $f(5) = 7$	2. $G(-1) = 2$	3. $g(0) = 5$ $g(-10) = 5$ $g(20) = 5$
4. $f(x^a) = x^{a^2}$	5. $f(a) = 3a^2 + 4a - 5$ $f(-a) = 3a^2 - 4a - 5$ $f(a + h) = 3a^2 + 6ah + 3h^2 + 4a + 4h - 5$ $f(2x - 3) = 12x^2 - 28x + 10$ $f(x + h) = 3x^2 + 6xh + 3h^2 + 4x + 4h - 5$	6. $f(17) = 2\sqrt{3} + 4$
7. $g(1) = -3$	8. $h(2) = -5$	9. $p(3) = -6$
10. $k(19) = 11$	11. $f(-x) = -3x^3 - 5x^2 - x - 3$	12. $\{x \mid x \neq -5, x \neq 3\}$
13. $[-4, \infty)$	14. $(-\infty, 8]$	15. $(-\infty, \infty)$
16. $(-\infty, \infty)$	17. $(-\infty, \infty)$	18. $(-\infty, \infty)$
19. $[-3, 3]$	20. $(-\infty, \infty)$	21. $(-\infty, \infty)$
22. $(-\infty, \infty)$	23. $(-\infty, \infty)$	24. 5 ft 6 in