

Graded Homework (Test 1 - #2)

You must show all of your work to get full credit! Circle your answer!For #1-4: $f(x) = x - 3$, $g(x) = x^2 - 4x - 12$, $h(x) = \sqrt{3x + 6}$, and $p(x) = x^2 - 9$

1. Find the x-intercept(s) for:

a) $f(x)$

b) $g(x)$

c) $p(x)$

2. Find the y-intercept for:

a) $f(x)$

b) $g(x)$

c) $h(x)$

3. Find:

a) $f(1)$

b) $g(-3)$

c) $h(10)$

d) $g(x - 1)$

e) $(f \circ g)(5)$

f) $(p \circ h)(-5)$

g) $(g + p)(x)$

h) $(f - g)(x)$

i) $(f \cdot p)(x)$

$$f(x) = x - 3, \quad g(x) = x^2 - 4x - 12, \quad h(x) = \sqrt{3x + 6}, \quad \text{and} \quad p(x) = x^2 - 9$$

4. Find the domain of each function. Write your answer in interval notation.

a) $g(x)$ b) $h(x)$ c) $\left(\frac{g}{f}\right)(x)$ d) $(p \circ f)(x)$

D = _____ D = _____ D = _____ D = _____

5. Find the domain of each function. Write your answer in interval notation.

a) $f(x) = \frac{1}{(x-1)^3}$ b) $f(x) = \frac{\sqrt{x-1}}{x-5}$

D = _____ D = _____

6. Consider the equation $x^2 + y^2 = 106$. When $x = 9$, find the point in Quadrant IV that is on the circle. Then write the equation of the tangent line at that point.

7. Refer to the graph at the right.

Find:

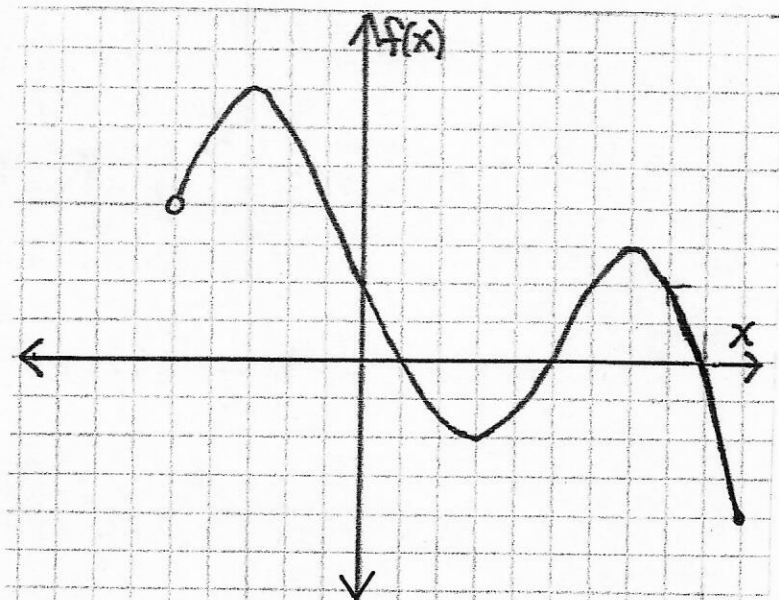
a) $f(-1)$ b) the domain c) the range

d) For what value of x does $f(x)$ attain a maximum?

e) What is the maximum value?

f) What x value(s) are the zeros of the function?

g) For what value(s) of x does $f(x) = 2$?



8. Calculate without a calculator:

a) $\ln e^2$

b) $\log_2 \frac{1}{8}$

c) $\log_6 36^{\frac{5}{2}}$

d) $\ln(\sqrt[3]{e} \cdot e^{\frac{1}{2}})$

9. Use the log properties to calculate (do not use a calculator):

a) $\log_8 12 + \log_8 \frac{4}{3}$

b) $\log_3 432 - 2 \log_3 4$

10. Solve for x by taking the log or $\ln$ of both sides of the equation. Round your answer to hundredths.

a) $6^{4x} = 29$

b) $5^{2x-3} = 17$