This practice exam is for review purposes only; the actual exam may differ in format and content. Use it as a study aid, and refer to the syllabus for specific details. - Robert Pearce

Name:_____

1. Simplify: $\frac{5}{x} + \frac{x^2}{7}$

2. Simplify: $\frac{2x+5}{x^2+3x+2} + \frac{x-1}{x^2+7x+10}$

3. Simplify: $\frac{3x}{4y} \times \frac{2y^2}{5x}$

4. Simplify: $\frac{x^2-2x-8}{x+2} \div \frac{x^2-4}{x-4}$

5. For the function: $f(x) = 2x^2 - 20x - 4$

   (a) Determine, without graphing, whether the function has a minimum or maximum value.

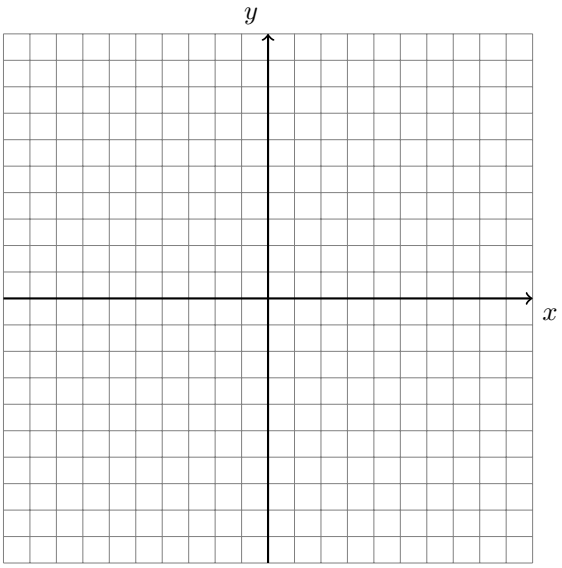
   (b) Find the minimum or maximum value.

   (c) Find the functinons domain and range.

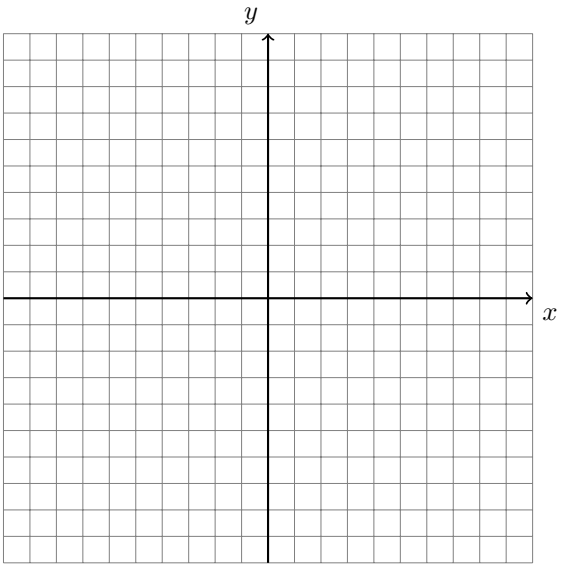
6. The width of a rectangle is 6 meters less than its length. The area is 72 square meters. Find the dimensions of the rectangle.

Cont.

7. Graph and find the domain and range of: $f(x) = (x+3)^2 - 2$



8. Graph and find the domain and range of: $f(x) = -2(x+2)^2 + 4$



9. Are the following polynomials?
   (a) $4x^3 + 2x - 3$

   (b) $\frac{2}{x} - 7x$

   (c) $5 + y^5 - 7x^4$

10. Describe the end behavior of: $f(x) = -8x^2 - 3x + 5$

11. Find the roots and their multiplicity: $f(x) = x^2 + 5x - 6$

12. The graph $f(x) = x^5 - 2x^4 - 4x^3 + 8x^2$ has at most how many turning points?

13. Construct a polynomial with the following characteristics:
   (a) zeros: -2 (multiplicity 1), 1 (multiplicity 1), 4 (multiplicity 2)
   (b) degree: 4
   (c) contains: (3,20)

Cont.

14. Solve for x: $3x^2 + 4x = 0$

15. Solve for x: $2x^3 - 11x^2 + 10x + 8 = 0$

16. Find the domain: $\frac{x^3+2x^2}{x^2+3x+2}$

17. Find the domain: $\frac{25-x^2}{x^2+4x-5}$

Cont.

18. Identify any vertical, horizontal, or oblique asymptotes: $\frac{4x+5}{x+1}$

19. Identify any vertical, horizontal, or oblique asymptotes: $\frac{2x+5}{4x-3}$

20. Identify any vertical, horizontal, or oblique asymptotes: $\frac{x+2}{x^2-9}$

21. Identify any vertical, horizontal, or oblique asymptotes: $\frac{x^3+4x-5}{x^2+3x}$

Cont.

22. Solve and graph the solution set on a real number line: $2x + x > 15$.

23. Solve and graph the solution set on a real number line: $4x^2 \leq 1 - 2x$.

The End.