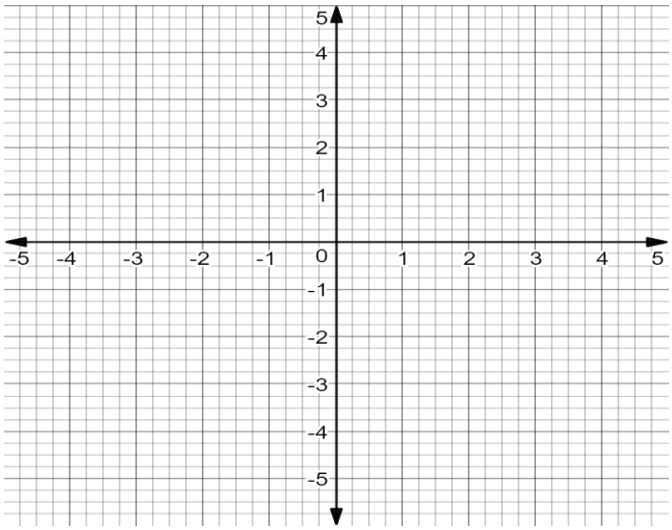
Name:	Date: November 9, 2020
Answer all questions in the spaces provided, showing all work. Simplify unless instructed. Please submit this as a single file in PDF form, using the filename: A-3 Your first name, Last name.	K /15 A /18 T /9 C /5

KNOWLEDGE and UNDERSTANDING

1. Graph $f(x)=\dfrac{-5}{4x^2+4x-15}$ and fill in the table. **(15)**



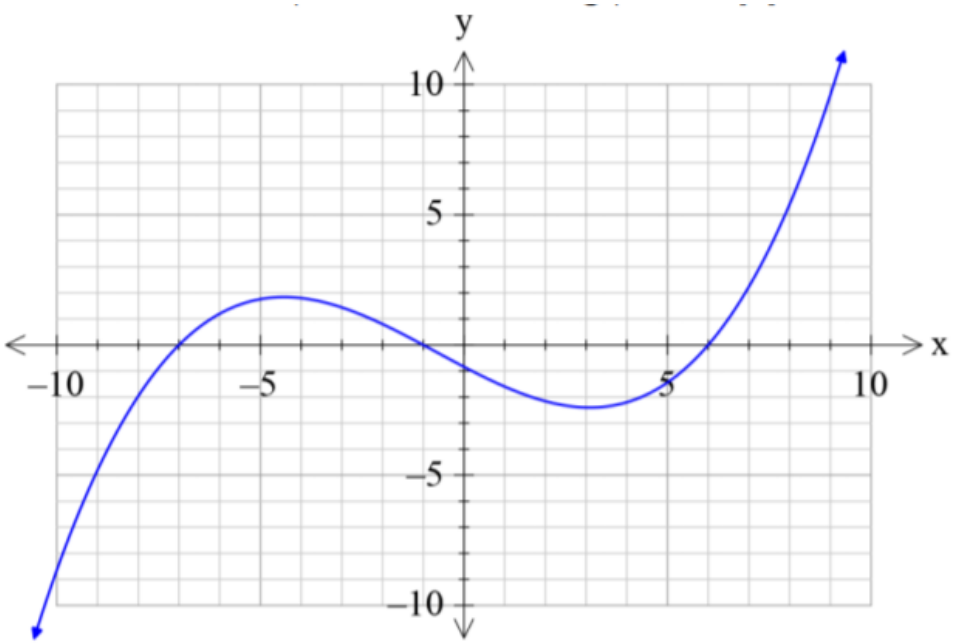
Show all calculations here:

x-intercept	
y-intercept	
Vertical asymptote(s)	
Behaviour near vertical asymptote(s)	
End behavior	
Horizontal asymptote(s)	
Domain	
Range	
Interval(s) of increase	
Interval(s) where $f(x)<0$	

APPLICATION

2. Solve $\frac{5}{x-5} \geq \frac{3}{x+4}$. **(5)**

3. Sketch the reciprocal of the polynomial function below. Be sure to include invariant points (points that are not affected by the transformation) and turning points. **(5)**



4. The profit, in thousands of dollars, from the sale of x kilograms of tuna fish can be modelled by the function $P(x)=\frac{100x-400}{x+600}$. How many kilograms of tuna fish must be sold to obtain a profit of $ 50 000. **(3)**

5. Determine the asymptotes for each of the following. Do not sketch the graph. **(5)**

a) $g(x)=\frac{2x-5}{7-3x}$

b) $f(x)=\frac{2x^2-x-15}{x+3}$

THINKING AND INQUIRY

6. Determine the equation of a rational function where its domain is $\{x \in \Re\}$ and has an absolute minimum point at $\left(-3, -\frac{7}{2}\right)$ and passes through $(-1, -2)$. **(5)**

7. Develop the equation of a rational function where the following criteria are met. **(4)**
   - 3 vertical asymptotes
   - $f(x) \leq 0$ over its entire domain
   - $f(-x) = f(x)$
   - has 2 x-intercepts

Five communication marks will be given for mathematical form throughout the assessment.