Math 100. Quiz 1. 2017-09-21 Thursday (vt-d). **Time 25min.**

Section . . . .   Instructor name . . . .

Your email . . . .

- **For each computation of limits in this test, if the limit does not exist, indicate whether it diverges to $-\infty$ or $+\infty$.**

- Simplify all your answers as much as possible and express answers in terms of fractions or constants such as $\frac{1}{150}$, $\sqrt{e}$ or $\ln(4)$ rather than decimals.

1. Each part of this question is worth 1 mark, and the correct answer will get the full mark.

   (a) **(1 pt)** Compute
   $$\lim_{x \to -3} \frac{x^2 + 7}{|x + 1|}$$

   (b) **(1 pt)** Compute
   $$\lim_{x \to +\infty} \frac{3x^2 - 2}{2x^2 + x + 5}$$

2. Each part of this question is worth 2 marks. **You have to show all your work in order to get credit.**

(a) **(2 pts)** Compute

$$\lim_{x \to 1^-} \frac{\sqrt{(x-1)^2}}{x^2 - 1}$$

(b) **(2 pts)** Compute the limit

$$\lim_{x \to -\infty} x - \sqrt{x^2 + x}$$

3. This question is worth 4 marks. **You have to show all your work in order to get credit.**

Find the two real numbers a and b such that $\lim_{x \to 2} f(x)$ exists for

$$f(x) = \begin{cases} \dfrac{x^2 - ax - 6}{x - 2} & \text{if } x < 2 \\ 3 + bx & \text{if } x > 2. \end{cases}$$

Math 100. Quiz 1. 2017-09-21 Thursday (vt-s). **Time 25min.**

Section ....   Instructor name ....

Your email ....

- **For each computation of limits in this test, if the limit does not exist, indicate whether it diverges to $-\infty$ or $+\infty$.**

- Simplify all your answers as much as possible and express answers in terms of fractions or constants such as $\frac{1}{150}$, $\sqrt{e}$ or $\ln(4)$ rather than decimals.

1. Each part of this question is worth 1 mark, and the correct answer will get the full mark.

   (a) **(1 pt)** Compute
   $$\lim_{x \to -1} \frac{3}{\sqrt{7x^3 + 11}}$$

   (b) **(1 pt)** Compute
   $$\lim_{t \to -\infty} \frac{t^2 + 4t}{5t^2 + 1}$$

2. Each part of this question is worth 2 marks. **You have to show all your work in order to get credit.**

(a) **(2 pts)** Compute

$$\lim_{x \to 1^+} \frac{|1 - x|}{x^2 + x - 2}$$

(b) **(2 pt)** Compute

$$\lim_{x \to -\infty} x^2 + x$$

3. This question is worth 4 marks. **You have to show all your work in order to get credit.** Find the two real numbers a and b such that $\lim_{x \to -2} f(x)$ exists for

$$f(x) = \begin{cases} \dfrac{x^2 + ax - 4}{x + 2} & \text{if} \ \ x < -2 \\ -x^2 + bx & \text{if} \ \ x > -2. \end{cases}$$

Math 100. Quiz 1. 2017-09-21 Thursday (vt-t). **Time 25min.**

Section ....   Instructor name ....

Your email ....

- **For each computation of limits in this test, if the limit does not exist, indicate whether it diverges to $-\infty$ or $+\infty$.**

- Simplify all your answers as much as possible and express answers in terms of fractions or constants such as $\frac{1}{150}$, $\sqrt{e}$ or $\ln(4)$ rather than decimals.

1. Each part of this question is worth 1 mark, and the correct answer will get the full mark.

(a) **(1 pt)** Compute
$$\lim_{x \to 2} \frac{x^2 - 10}{|x - 5|}$$

(b) **(1 pt)** Compute
$$\lim_{x \to +\infty} \frac{2x^2 - 5}{3x^2 - 3x - 2}$$

2. Each part of this question is worth 2 marks. **You have to show all your work in order to get credit.**

(a) **(2 pts)** Compute

$$\lim_{x \to -2^-} \frac{\sqrt{(x+2)^2}}{x^2 - 4}$$

(b) **(2 pts)** Compute the limit

$$\lim_{x \to -\infty} 2x - \sqrt{x^2 - 3x}$$

3. This question is worth 4 marks. **You have to show all your work in order to get credit.**

Find the two real numbers a and b such that $\lim_{x \to 1} f(x)$ exists for

$$f(x) = \begin{cases} \dfrac{x^2 - ax - 6}{x - 1} & \text{if } x < 1 \\ 3 + b\,x & \text{if } x > 1. \end{cases}$$