

## Quiz #6

Monday, October 31 2016

| Duration: | 20 min |  |  |  |
|-----------|--------|--|--|--|
| NAME: _   |        |  |  |  |

Please write clearly and properly. Always explain your answers.

| Problem | Grade |
|---------|-------|
| 1       |       |
| 2       |       |
| Total   |       |

| <b>1</b> $1 \sim 2$ points.). | nal fraction whos  | se zeroes are 1 –  | i and -1 both   | with multiplic  |
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|                               |  |  | t and -1, both  | With muniph   |
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|                               | -tian.   |  |   |   |
| t the following run           |  |  |   |   |
|                               | $f:\mathbb{C}\to$  | 3 2 2  |   |   |
|                               |  | $z^3 - 2z^- + z$   |   |   |
| hat kind of function          | on is $f$ ?  |  |   |   |
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| ompute all the succ           | cessive derivative   | es of $f$ .  |   |   |
|                               |  |  |   |   |
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| 1                             | n 2 (~ 8 points.).  r the following fun  That kind of function | example of a rational fraction whose whose only pole is $i$ , with multiplicit $\mathbf{r}$ and $\mathbf{r}$ are a points.).  In the following function: $f: \mathbb{C} \to \mathbb{C}$ That kind of function is $f$ ? | example of a rational fraction whose zeroes are $1-z^2$ hose only pole is $i$ , with multiplicity 2.  In $2$ ( $\sim$ 8 points.).  In the following function: $f: \mathbb{C} \to \mathbb{C}$ $z \mapsto z^3 - 2z^2 + z$ | example of a rational fraction whose zeroes are $1-i$ and $-1$ , both those only pole is $i$ , with multiplicity 2.  In $2$ ( $\sim$ 8 points.).  In the following function: $f: \mathbb{C} \to \mathbb{C}$ $z \mapsto z^3 - 2z^2 + z$ That kind of function is $f$ ? |

|              |                    |              |             | Т | <br>as a root of |
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| Is z = 1 a r | oot of $f$ ? Find  | its multipl  | icity.      |   |                  |
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| Find all the | e roots of $f$ and | l their mult | iplicities. |   |                  |
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| Find the | J           |                   |          |  |  |
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| Find the | Taylor expa | ansion of $f$ at  | t z = 1. |  |  |
| Find the | Taylor expa | ansion of $f$ and | t z = 1. |  |  |
| Find the | Taylor expa | ension of f a     | t z = 1. |  |  |
| Find the | Taylor expa | ension of f a     | t z = 1. |  |  |
| Find the | Taylor expa | ension of f a     | t z = 1. |  |  |
| Find the | Taylor expa | ansion of $f$ and | t z = 1. |  |  |
| Find the | Taylor expa | ansion of $f$ a   | t z = 1. |  |  |
| Find the | Taylor expa | ansion of f a     | tz = 1.  |  |  |
| Find the | Taylor expa | ansion of f a     | tz = 1.  |  |  |
| Find the | Taylor expa | ansion of f a     | tz = 1.  |  |  |
| Find the | Taylor expa | ansion of f a     | t z = 1. |  |  |
| Find the | Taylor expa | ansion of f a     | t z = 1. |  |  |
| Find the | Taylor expa | ansion of f a     | tz = 1.  |  |  |