NAME: (print!) _Kishan Patel_

Email DrZlinear@gmail.com as soon as I tell you (around 3:15pm)

Subject: q6

with an attachment called

q6FirstLast.pdf (e.g. q6BritannySpears.pdf)

1. (2 points) Who was the author of the 'Discorsi'? What year was it published?

Galileo Galilei 1634

2. (1 points) Who unified Algebra and Geometry? What year was the book describing this unification published?

Rene Descartes, published in 1637

3. (2 point) What are the names of the two persons who discovered the differntial calculus? Who was first to *discover* it? Who was the first to *publish* it?

Isaac Newton   first Published

Gottfried Leibniz first discovered

4. (5 points) Use Cardano's method (no credit for other methods!) to find the three roots of the cubic equation

$$x^3 + 6x - 7 = 0 \quad .$$

$$u^3 + v^3 + (u+v)(3uv+6) - 7$$

$$3uv + 6 = 0$$
$$uv = -2$$
$$u^3v^3 = -8$$
$$u^3 + v^3 = 7$$
$$x^2 - 7x - 8$$
$$x = -1, 8$$
$$u^3 = -1, v^3 = 8$$
$$u = -1 \quad v = 2$$

$$x = u + v$$
$$= 1$$

$$x = -1\left(-\frac{1}{2} + i \cdot \frac{\sqrt{3}}{2}\right) + 2\left(-\frac{1}{2} - i \cdot \frac{\sqrt{3}}{2}\right), \quad 2\left(-\frac{1}{2} + i \cdot \frac{\sqrt{3}}{2}\right) - 1\left(-\frac{1}{2} - i \cdot \frac{\sqrt{3}}{2}\right)$$

$$x = -\frac{1}{2} - \frac{3\sqrt{3}\,i}{2}, \quad -\frac{1}{2} + \frac{3\sqrt{3}\,i}{2}$$

roots: $1, \quad -\frac{1}{2} \pm \frac{3\sqrt{3}\,i}{2}$