FULL NAME _____

ID _____

1. (5 points) Find the domain of the rational expression.

$$\frac{3x-3}{x(x-2)}$$

A. 2 and 5

B. $(-\infty, 0) \cup (0, 2) \cup (2, \infty)$

C. $(-\infty, 0) \cup (0, \infty)$

D. $(0, 2)$

E. $(0, 2) \cup (2, \infty)$

2. (5 points) Add and simplify:

$$\frac{a}{a+2} + \frac{a}{a-2}$$

A. $\dfrac{a}{a+2}$

B. $\dfrac{(a+1)(a+2)}{a}$

C. $\dfrac{2a^2}{(a+2)(a-2)}$

D. $\dfrac{a+3}{a-2}$

E. a

Total: _____/10

3. (0 points) Please draw your best duckling.

USEFUL FORMULAS

- $m = \dfrac{y_2 - y_1}{x_2 - x_1}$
- $y = mx + b$
- $Ax + By = C$
- $y - y_1 = m(x - x_1)$
- $a^2 - b^2 = (a + b)(a - b)$
- $a^3 + b^3 = (a + b)(a^2 - ab + b^2)$
- $a^3 - b^3 = (a - b)(a^2 + ab + b^2)$
- $(a + b)^2 = a^2 + 2ab + b^2$
- $(a - b)^2 = a^2 - 2ab + b^2$
- $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$
- $\left(\dfrac{x_1 + x_2}{2}, \dfrac{y_1 + y_2}{2}\right)$
- $(x - h)^2 + (y - k)^2 = r^2$
- $x = \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
- $a^2 + b^2 = c^2$
- $a^m a^n = a^{m+n}$
- $a^0 = 1$
- $\dfrac{a^m}{a^n} = a^{m-n}$
- $(a^m)^n = a^{m \cdot n}$
- $(ab)^m = a^m b^m$
- $\dfrac{1}{a^n} = a^{-n}$
- $\left(\dfrac{a}{b}\right)^n = \dfrac{a^n}{b^n}, (b \neq 0)$