Answer all of the following questions in the space provided. Show all work as partial credit may be given. Answers without justification, even if they are correct, will earn no credit.

1. (2 pts.) Find the domain of the function $f(x) = \dfrac{x^2 + 5}{x - 2}$.

All real numbers $x \neq 2$.

2. (2 pts.) Find $g(t + 3)$ when $g(t) = (2t - 6)^2$.

$$g(t+3) = (2(t+3) - 6)^2$$
$$= (2t + 6 - 6)^2$$
$$= (2t)^2 = 4t^2 \;/\!/$$

3. (3 pts.) Find all x and y intercepts of the function $f(x) = x^2 + 2x - 8$.

x – intercepts : $x^2 + 2x - 8 = 0$
$(x - 2)(x + 4) = 0$
$x = 2, \; x = -4 \;/\!/$

y – intercepts: $f(0) = -8 \quad y = -8 \;/\!/$

4. (3 pts.) Find an equation for the line passing through $(2, 5)$ and $(0, 4)$.

$m = \dfrac{5 - 4}{2 - 0} = \dfrac{1}{2}$ $\qquad y - 4 = \dfrac{1}{2}(x - 0)$

$$y = \dfrac{1}{2}x + 4 \;/\!/$$

Answer all of the following questions in the space provided. Show all work as partial credit may be given. Answers without justification, even if they are correct, will earn no credit.

1. (2 pts.) Find the domain of the function $g(t) = \sqrt{1-t}$.

All real numbers $t \le 1$.

2. (2 pts.) Find $f(x+1)$ when $f(x) = x^2 + 5$.

$$f(x+1) = (x+1)^2 + 5$$
$$= x^2 + 2x + 1 + 5$$
$$= x^2 + 2x + 6 \; /\!/$$

3. (3 pts.) Find all x and y intercepts of the function $f(x) = x^2 + x - 2$.

X-intercepts: $x^2 + x - 2 = 0$
$$(x-1)(x+2) = 0$$
$$x = 1, \; x = -2 \; /\!/$$

y-intercept: $f(0) = -2$ $y = -2 \; /\!/$

4. (3 pts.) Find an equation for the line passing through $(2,0)$ and $(-1,2)$.

$$m = \frac{0-2}{2-(-1)} = -\frac{2}{3} \qquad y - 0 = -\frac{2}{3}(x-2)$$

$$y = -\frac{2}{3}x + \frac{4}{3} \; /\!/$$