Question 1

a) $\sqrt{\dfrac{9+144}{231-144}}$

$= \sqrt{\dfrac{153}{87}}$

$= 1.33$

b) $|x+3| < 2$

$x+3 < 2$ or $-x-3 < 2$

$x < -1$ $\quad -x < 5$

$x > -5$

$-5 < x < -1$

c) $x^2 - 2x - 8 = 0$

$(x+2)(x-4) = 0$

$x = -2$ or $x = 4$.

d) $\int 3 + \frac{1}{x} \, dx$

$= \int 3 + x^{-1} \, dx$

$= 3x + \ln x + C$.

e) $\dfrac{x}{x^2-4} + \dfrac{2}{x-2}$

$= \dfrac{x(x-2)}{(x^2-4)(x-2)} + \dfrac{2(x^2-4)}{(x^2-4)(x-2)}$ ⟶

PTO.

e) cont.

$$= \frac{x^2-2x}{(x^2-4)(x-2)} + \frac{2x^2-8}{(x^2-4)(x-2)}$$

$$= \frac{3x^2-2x-8}{(x^2-4)(x-2)}$$

$$= \frac{3x^2-2x-8}{x^3-2x^2-4x+8}$$

f) \$979 inc. 10% tax; Orig. price?

$$979 \times \frac{100}{110}$$

= \$890 is the original price.