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$$\begin{aligned}
 b) \quad Q(x) &= (2-1)(x-3) \\
 &= x^2 - 3x - x + 3 \\
 Q(x) &= x^2 - 4x + 3
 \end{aligned}$$

$$\begin{aligned}
 c) \quad E(x) &= 5.5 \\
 \frac{-x^2 + 4x + 8}{2} &= 5.5
 \end{aligned}$$

$$-x^2 + 4x + 8 = 2(5.5)$$

$$-x^2 + 4x + 8 = 11$$

$$-x^2 + 4x + 8 - 11 = 0$$

$$-x^2 + 4x - 3 = 0$$

$$-(x^2 - 4x + 3) = 0$$

$$-(x^2 - 3x - x + 3) = 0$$

$$-x^2 + 3x + x - 3 = 0$$

$$-x(x-3) + 3(x-1) = 0$$

$$(x-1)(x-3) = 0$$

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$$\begin{aligned}
 &\downarrow \\
 x=1 & \text{ or } x=3 \\
 \text{accepted} & \quad \text{rejected}
 \end{aligned}$$

$$0 < x < 2$$

4) c) A DANM = ~~Area~~ shaded region - A.DABM

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

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

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

$$A.DMNA = \frac{-x^2 + 8}{2} = \frac{8 - x^2}{2} \text{ cm}^2$$

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