

ERRATA for
FE Environmental Practice Exam
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Revisions are shown in red.

Question 5, p. 9

Given the function $f(x) = 1/(x - 2)$, the linear approximation of $f(x)$ around $x = -1$ is most nearly:

Question 50, p. 27

A system is designed to allow at least **10,000 Btu/min** of heat to be transferred (Q) **from the system to the air** as air flows through it. The system can be operated so that air ($c_p = 0.26$ Btu/lb-F) flowing at 500 lb/min will exit at 100°F. The minimum temperature (°F) the air can enter the system is _____.

Solutions Table, p. 52

50: The correct answer is: 23 to 24°F

Solution 25, p. 64

Refer to the Cylindrical Pressure Vessel section in the Mechanics of Materials chapter of the *FE Reference Handbook*.

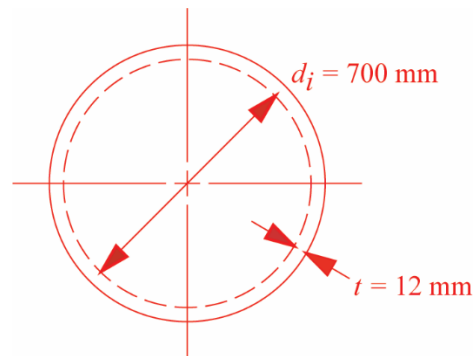
The cylinder can be considered thin-walled if $\frac{t}{\frac{d_i}{2}} \leq 0.10$. In this case, $t = 12$ mm and $d_i = 700$ mm.

Since $\frac{t}{\frac{d_i}{2}} = \frac{12}{350} = 0.034$ which is ≤ 0.10 , the pipe is thin-walled.

$$\text{Thus } \sigma_t = \frac{P_i r}{t}$$

$$\text{where } r = \frac{r_i + r_o}{2} = \frac{350 + 362}{2} = 356 \text{ mm}$$

$$\sigma_t = \frac{(1.680 \text{ MPa})(356 \text{ mm})}{12 \text{ mm}} = 49.8 \text{ MPa}$$



THE CORRECT ANSWER IS: B

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Solution 50, p. 75

Refer to the Compressors section in the Fluid Mechanics chapter of the *FE Reference Handbook*.

$$Q = m c_p (T_2 - T_1)$$

Solve for T_1

$$-T_1 = [Q/m c_p] - T_2$$

$$T_1 = T_2 - [Q/m c_p]$$

Substitute and solve

$$T_1 = 100^\circ\text{F} - [10,000 \text{ Btu/min}/(500 \text{ lb/min})(0.26 \text{ Btu/lb}\cdot^\circ\text{F})]$$

$$T_1 = 100^\circ\text{F} - (76.9^\circ\text{F})$$

$$T_1 = 23.1^\circ\text{F}$$

~~Since the negative is showing a loss of heat, the initial temperature = 669°F.~~

THE CORRECT ANSWER IS: 23°F to 24°F