

## Period 4 Exercise Answers

**E.1** A practical handle for a hot pan can be made from each of the following EXCEPT

- a) a poor conductor of heat.
- b) a thermal insulator.
- c) plastic.
- d) wood.
- e) silver.

**E.1 = e**

**E.2** In order for thermal energy to be transferred between two blocks of iron, the iron blocks

- a) must be in contact with each other.
- b) must have different sizes.
- c) must have different temperatures.
- d) cannot be located in a vacuum.
- e) must have different specific heats.

**E.2 = c**

**E.3** Radiant energy is best absorbed by surfaces that are

- a) shiny.
- b) black.
- c) white.
- d) smooth.
- e) silvered.

**E.3 = b**

**E.4** Warm air rises because

- a) it is more dense than the surrounding cooler air.
- b) it is less dense than the surrounding cooler air.
- c) it is just as dense as the surrounding cooler air but has a larger thermal energy, which forces it up.
- d) hot objects always rise.
- e) NONE of the answers is correct.

**E.4 = b**

**E.5** If you stand next to a bonfire that is burning in the center of an open area on a calm day, most of the energy transferred to you as heat is transferred via

- a) conduction through open air.
- b) convection through open air.
- c) radiation.
- d) sublimation.
- e) diffusion.

**E.5 = c**

**E.6** The heat flow through a 6 foot by 10 foot brick wall is 4,500 BTU per hour. The temperature on one side of the wall is 75 °F and the temperature on the other side is 50 °F. What is the R-value of the brick?

- a) 0.11 ft<sup>2</sup> °F hr/BTU
- b) 0.25 ft<sup>2</sup> °F hr/BTU
- c) 0.33 ft<sup>2</sup> °F hr/BTU
- d) 0.85 ft<sup>2</sup> °F hr/BTU
- e) 1.36 ft<sup>2</sup> °F hr/BTU

$$R = \frac{A (T_{\text{hot}} - T_{\text{cold}})}{\text{BTU/hr}} =$$

$$\frac{(6 \text{ ft} \times 10 \text{ ft}) \times (75 \text{ }^\circ\text{F} - 50 \text{ }^\circ\text{F})}{4,500 \text{ BTU/hr}} =$$

$$\frac{(60 \text{ ft}^2) \times (25 \text{ }^\circ\text{F})}{4,500 \text{ BTU/hr}} = \frac{0.33 \text{ ft}^2 \text{ }^\circ\text{F}}{\text{BTU/hr}}$$

**E6 = c**

## Period 4 Answers

**E.1 = e**

**E.2 = c**

**E.3 = b**

**E.4 = b**

**E.5 = c**

**E.6 = c**