

Name: \_\_\_\_\_

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**Chapter 9.3 Homework**  
**Conceptual Physics**

Parent Signature: \_\_\_\_\_

**Reviewing Concepts**

23. Define the three main types of heat transfer. (1.5)

24. Describe the flow of thermal energy when you hold a cold can of soda in your hand. What types of heat transfer are occurring?

25. Why do you think pots and pans for cooking are made out of metal?

26. What properties make a material a good thermal insulator? Give three examples of good thermal insulators.

27. Compare the ability of solids, liquids, and gases to conduct heat.

28. Why does hot air rise? What type of heat transfer is occurring?

29. Why does convection *not* occur in solid materials? (0.5)

30. Name a property of matter that increases its ability to absorb thermal radiation.

31. Explain, using your knowledge of heat transfer, why it is difficult to keep cool when it is 100° F outside.

### **Solving Problems**

14. Why does an Ohio black-capped chickadee fluff its feathers when it gets cold outside?

15. You pour some hot water into a metal cup. After a minute, you notice that the handle of the cup has become hot. Explain, using your knowledge of heat transfer, why the handle of the cup gets so hot. How would you design the cup so the handle does not burn your hand?

16. What primary type of heat transfer occurs in the following situations?

a. A cool breeze blows off the water when you are at the beach.

b. You burn your hand on a hot pan.

c. The Sun warms your skin.

d. Your feet feel cool on a tile floor.

e. Smoke rises up a chimney.

f. You feel warmer in a black T-shirt than a white T-shirt.