15-2 Review Probs

1. 150 g of H_2O ↑ temp from 21°C to 32°C when a ____ sample of metal (c_{metal} = 1.023 J/g°C) that was heated to 115°C was placed into it (c_{H_2O} = 4.184 J/g°C)
   * What's the mass of metal?

2. 121 g of H_2O ↑ in temp. from 23°C to 28.5°C when a 50 g sample of metal that was placed into was heated to 125°C (c_{H_2O} = 4.184 J/g°C). What's the specific heat of the metal?

3. If 130 g of H_2O ↑ in temp. from 21°C to 50.2°C when a 23 g sample of metal was placed into it (c_{metal} = 0.235 J/g°C) and (c_{H_2O} = 4.184 J/g°C). What's the initial temp of the metal?

4. If 115 g of H_2O ↑ in temp from 20°C to 43.5°C when a sample of iron metal (c_{metal} = 0.449 J/g°C) was placed into it, and the metal was originally heated to 90°C, what's the <u>mass of the iron</u> used?

5. If H_{prod} = 1500 kJ, and H_{react} = 300 kJ, is the reaction <u>exo-</u> or <u>endothermic</u>?

6. If H_{prod} = 1500 kJ, and H_{react} = 1850 kJ, is the reaction <u>exo-</u> or <u>endothermic</u>?

7. Why do scientists express and calculate enthalpy changes, instead of actual energy content of food?