# Section I — Percentages

## 2 1 5

1.      7 is 72% of what number?

2.      73 is 8% of what number?

3.      93 is what percent of 1162.5?

4.      19 is 24% of what number?

5. 37 is what percent of 148?

6. What is 15% of 268?

7. 79 is 96% of what number?

8. 11 is what percent of 17.1875?

# Section II — Blueprint Calculations

9.       Shape C, Scale = 32, tile job.          13. Shape G, Scale = 24, baseboard job.

10.       Shape C, Scale = 36, pipe job.          14. Shape K, Scale = 32, pipe job.

11.       Shape D, Scale = 32, carpet job.          15. Shape M, Scale = 50, carpet job.

12.       Shape J, Scale = 32, baseboard job.          16. Shape N, Scale = 48, molding job.

# Section III — Carbon Footprint

$$2\ 1\ 5$$

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**17.** Propyl Alcohol cycle, 899 (lb/hr) flowrate, outside is 87°F, inside 87°F?

**21** How many pounds of $CO_2$ are released by burning natural gas for 10 hours in a ET 110-C?

**18.** Room B's Wall #2, made of Timber, pitchpine, if inside is 80°F and outside is 12°F?

**22** How many mmBTUs are generated by burning 206 pounds of East.Hophornbeam?

**19.** Room A's Wall #3, made of Hardwoods (oak, maple..), if inside is 71°F and outside is 7°F?

**23** How many pounds of $CO_2$ are released by burning 143 pounds of Black Spruce?

**20.** Propylene cycle, 1355 (lb/hr) flowrate, outside is 47°F, inside 42°F?

**24** Room C's Wall #3, made of Brickwork, dense, if inside is 63°F and outside is 10°F?

# Section IV — Green Building

2 1 5

25. Propylene Glycol cycle, 1082 (lb/hr) flowrate, outside is 73°F, inside 65°F?

29 Aniline cycle, 933 (lb/hr) flowrate, outside is 59°F, inside 80°F?

26. Aniline cycle, 1397 (lb/hr) flowrate, outside is 46°F, inside 64°F?

30 Methyl Alcohol cycle, 625 (lb/hr) flowrate, outside is 56°F, inside 59°F?

27. How many mmBTUs are generated by burning 248 pounds of Basswood?

31 Room C's Floor, made of Silicon oil, if inside is 55°F and outside is 16°F?

28. Methyl Alcohol cycle, 942 (lb/hr) flowrate, outside is 59°F, inside 51°F?

32 Sodium hydrate cycle, 924 (lb/hr) flowrate, outside is 86°F, inside 55°F?