Chapter 10 – Solving Linear Relations

**Modeling and solving one step equations**

* **Inspection (mental math)** - ask yourself what number makes sense, and try it out.

Ex. 3g = 12 Ex. 4 – g = 15

* **Models or diagrams (algebra tiles)** – use / sketch the tiles to map out the equation and then balance it.

Ex. 7r = 21 Ex. d ÷ 2 = 6

* **Applying opposite operations** **(isolate variable)-** get the variable ALONE on one side of the equals sign by using the opposite of what has been done to it. Opposites are **+ & -, x & ÷**. **Remember:** what you do to one side of the =, you must do to the other!

Ex. 20 + r = 31 Ex. d ÷ 5 = 6

 Right side Left side Right side Left side

**Check your answers:**

1. Substitution – sub in (replace) the variable in the ORIGINAL QUESTION with the answer you got, and it should work.
2. Model the equation - replace the variables with actual tiles and they should balance.

**Modeling and solving two step equations – similar to one step.**

* **Inspection - difficult** because 2 steps to think about.
* **Models** – can use “balance scale” or algebra tiles.
* **Opposite Operations** in ***REVERSE BEDMAS*!! (+ & - first, then x & ÷)**

**\*Check with substitution or model / draw.**

**3 main types of equations:** *(where a, b, and c are numbers and x is the variable)*

1. Type **ax + b = c (multiplying the variable) Right side Left side**

Ex: 4x + 3 = 23

**Step 1: subtract**

**Step 2: divide**

**Step 3: check**

1. Type **(x ÷ a) - b = c** **(dividing the variable) Right side Left side**

Ex: (x ÷ 4) – 2 =

**Step 1: add**

**Step 2: multiply**

**Step 3: check**

1. Type **a(x + b) = c** **(adding to the variable) Right side Left side**

Ex: 3(x + 2) = 12

**Step 1: divide**

**Step 2: subtract**

**Step 3: check**

**Suggested Textbook Questions:**

**p. 376 – 378**

G #5, 11, 15, 22

R & B #5, 7, 11, 15, 21, 22

**p. 384 – 386**

G #3, 6, 7, 11

R & B #3, 6, 7, 11, 15, 16

**p. 392 – 393**

G #8, 11, 12

R& B #4, 8, 11, 12, 14

**p. 398 – 399**

G #4, 9, 10

R & B #4, 9, 10, 13, 16

**Chapter Review p. 400**

**Practice test p. 402**

**Project – Challenge in Real life p. 405**

Read over the info on the Earth’s Core. Complete and hand in the answers to #1-3.

**Include:**

* **graph of data (including labelled points, title and titles on axes)**
* **Calculate and show all work for:**
	+ **total temp change**
	+ **total depth change**
	+ **temp change per km (rounded)**
	+ **temp at -3400km (rounded**
	+ **depth at 9000°C (rounded)**
* **add points calculated to graph**