

Brain Boggliers

1) VII

$$2) V + IX = X \checkmark$$

$$3) 2645419 \div 1000 = 2645.419$$

$$\begin{array}{r} \overline{MM DC XL V} \\ \overline{MM DC XL V CD X IX} \end{array}$$

$$4) 1+2+3-4+5+6+78+9$$

$$5) 9+8+7+65+4+3+2+1$$

$$6) 7 \div 7 + 7 + 7$$

$$7) (1+2) \times 3 \times 4 \times 5 \times 6 \times 7 \times 8 \times 9 = 544320$$

$$8) 8+8+8=24$$

$$22+2=24$$

9) Since 81 is odd and \$1 bills are not allowed, the only other odd number is \$5 bills.

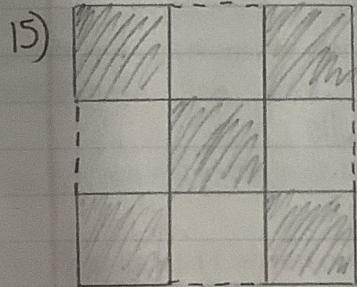
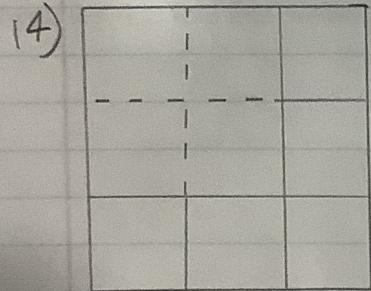
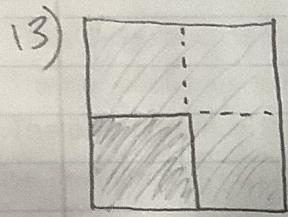
$$5, 50, 20, 2, 2, 2 \quad \text{sum} = 81$$

$$10) \begin{array}{r} 1 \times 21 \times 121 \times \\ 2 \times - 22 \times 122 \times \\ 11 \times 111 \times 211 \times \\ 12 \times 112 \times 212 \times \end{array} \left(\begin{array}{l} \text{continue until} \\ \text{one is} \\ \text{divisible} \end{array} \right) \Rightarrow 1222$$

11) $\frac{12.5}{25} = \frac{25}{50} = \frac{1}{2}$



$$\frac{1}{2} = \text{red} \quad \frac{1}{4} = \text{orange} \quad \frac{1}{8} = \text{yellow} \quad \frac{1}{16} = \text{green} \quad \frac{1}{32} = \text{blue}$$



16) ↑ ↓ ↗ ↘ ← OR ↑ ↑ ↑ ↑ → → → → ← ← ← ←

Brain Boggles

17) Next palindrom: 27072

$$27072 - 26962 = 110$$

$$110 \text{ km}/2 \text{ hrs} \Rightarrow 55 \text{ km/hr}$$

18) We need both first numbers to be either 8 or 9. Since products are higher when the two numbers are close together, we put the 8 in the 3 digit number and 9 in the 2 digit one. Do the same with 5 and 6 in the last slot and put the 7 in the last one remaining.

$$\begin{array}{r} 875 \\ \times 96 \\ \hline 8400 \end{array}$$

$$19) 666 \ 666 \ 666 \ 333 \ 333 \ 324$$

$$20) 567^2 = 321489$$

$$21) 975 \div 13$$

↗ smallest possible number
largest possible number

$$22) 771 \div 3 = 257$$

$$256$$

$$257 \pm 1 = 258$$

$$256 + 257 + 258 = 771$$

23) $20 \frac{4}{5}/100$ #'s (in 400s, there are 100 more)
4 4s from 1201 to 1234
 $240 + 100 + 4 = 344$

24) The page #'s have to be consecutive

$$\sqrt{1482} \approx 86.5$$

86.5 is in between 86 and 87

$$86 \times 87 = 7482$$

25) 19th century \Rightarrow 1800s

$$1881 \xrightarrow{\text{upside down}} 1881$$

26) compare A and B:

$$A = 33223^2 \times 33329^2 \times 40459^8 \quad \Rightarrow \quad A = 40459$$
$$B = 33223^3 \times 33329^1 \times 40459^2 \quad \Rightarrow \quad B = 33223$$

same method

Compare A and C:

$$A = 40459$$
$$C = 33329$$

Compare A and D:

$$A = 33223$$
$$D = 33329$$

$$27) 617283945062 + 617283945061 = 1234567890123$$

28) 7 clean shirts, 7 dirty shirts, 1 shirt he is wearing
 $7+7+1 = 15$ shirts