

Mini Math Speed Math Solutions

1. $\boxed{74}$

$$\begin{array}{r} 74 \\ 14 \overline{) 1036} \\ \underline{-98} \\ 56 \\ \underline{-56} \\ 0 \end{array}$$

2. $\boxed{360}$

$$3 \times 4 \times 5 \times 6 = 15 \times 24 = 300 + 60 = 360$$

3. $\boxed{0}$

$$3^2 + 4^2 - 5^2 = 9 + 16 - 25 = 0$$

4. $\boxed{5}$

$$\sqrt[3]{125} = 5$$

5. $\boxed{4}$

$$\frac{4}{3} + \frac{1}{2} + \frac{2}{3} + \frac{3}{2} = \frac{4}{3} + \frac{4}{2} = 2 + 2 = 4$$

6. $\boxed{1}$

$$\frac{A}{A} \times \frac{X}{X} \times \frac{X}{X} \times \frac{X}{2} + \frac{X}{2} \times \frac{X}{2} \times \frac{X}{4} = \frac{1}{2} + \frac{1}{2} = 1$$

7. $\boxed{\sqrt{2}}$

$$\frac{2}{\sqrt{2}} \times \frac{\sqrt{2}}{2} = \frac{2\sqrt{2}}{2} = \sqrt{2}$$

8. $\boxed{11}$

$$4 + 7 - 2 + 4 - 3 + 2 + 1 - 3 + 10 - 6 = \cancel{11 + 11 + 5} = 11$$

$$11 \quad 3 \quad 12 \quad 9 \quad 11 \quad 12 \quad 7 \quad 17 \quad 11$$

9. $\boxed{42}$

$$42 \times \frac{1}{2} \div 3 + 4 \div 2 \times 5 = 7 + 35 = 42$$

10. $\boxed{1}$

$$\frac{1}{2} \div \frac{1}{2} = \frac{1}{2} \times 2 = 1$$

11. $\boxed{30}$

$$8 \times 7 - 2 \times 2 - 20 \div 2 = 56 - 4 - 10 = 30$$

12. $\boxed{13}$

$$\frac{13}{13} = 13$$

13. $\boxed{4}$

$$x:3y \quad 9y:4z$$

$$3x:9y:4z, 4$$

14. [1]

$$\frac{230 + 17 \div 14 \div 2 \times 11 + 30}{490 \div 2 - 9 \times 5} = \frac{247 - 77 + 30}{245 - 45} = \frac{200}{200} = 1$$

15. [0]

$$\sqrt{102} - \sqrt{12} - \sqrt{42}$$

$$\begin{matrix} 9 \cdot 12 & \wedge & 16 \cdot 3 \\ 4 \cdot 3 & 4 \cdot 3 & 4 \cdot 4 \end{matrix}$$

$$6\sqrt{3} - 2\sqrt{3} - 4\sqrt{3} = 0$$

16. [-7] or [x = -7]

$$3|x+7| \geq 0$$

$$|x+7| \leq 0$$

$$x+7=0, \quad x+7=0$$

$$x = -7$$

17. [7]

Sequence is $3n$, $3n=21$

$$n = \frac{21}{3} = 7$$

18. [960]

Divisibility by 4 implies divisibility by 2, divisibility by 2 and 3 implies divisibility by 6.

$$4 \times 5 \times 3 = 60$$

$$60 \times 16 = 960$$

19. [230]

$$\begin{array}{r} 17 \overline{) 3910} \\ \underline{341} \\ 50 \\ \underline{51} \\ 10 \\ \underline{10} \\ 0 \end{array}$$

20. [5]

$$1 = .25q + .05n$$

$$\begin{array}{c|c} q & n \\ \hline 0 & 20 \\ 1 & 15 \\ 2 & 10 \\ 3 & 5 \\ 4 & 0 \end{array}$$

21. $\boxed{\frac{3+\sqrt{2}}{7}}$

$$\frac{1}{3-\sqrt{2}} \times \frac{3+\sqrt{2}}{3+\sqrt{2}} = \frac{3+\sqrt{2}}{9-2} = \frac{3+\sqrt{2}}{7}$$

22. $\boxed{5}$

SA of the room : $3 \cdot 3 \cdot 5 = 45$

$$10 \overline{) 45}$$

$$4.5 \approx 5$$

23. $\boxed{90321}$

$$357 \times 253 = 90321$$

24. $\boxed{80\pi}$

$$SA = \pi r^2 + 2\pi rh$$

$$= 16\pi + 64\pi = 80\pi$$

25. $\boxed{27}$

$$50 = b + t$$

$$27 = 26 + 3t$$

$$-100 = -26 - 2t$$

$$27 = t$$

26. $\boxed{4}$

New number must be even and ~~divisible by 3~~ digits must add up to 60
divisible by 3.

x	0	2	4	6	8
11+x	11	13	15	17	19

27. $\boxed{110}$

$$2 + 4 + 6 + 8 + 10 + 12 + 14 + 16 + 18 + 20$$

$$10 + 10 + 10 + 30 + 30 + 20 = 90 + 20 = 110$$

28. $\boxed{\frac{8}{15}}$

$$\frac{\frac{2}{10} \cdot \frac{24}{12} \cdot \frac{4}{24} \cdot \frac{42}{24} \cdot \frac{15}{4}}{\frac{12}{3} \cdot \frac{12}{3}} = \frac{\frac{4}{5} \cdot \frac{4}{3} \cdot \frac{1}{4} \cdot 2 \cdot \frac{15}{4}}{\frac{12}{3} \cdot \frac{12}{3}} = \frac{\frac{2}{9}}{\frac{5}{3}} = \frac{2}{9} \times \frac{3}{5} = \frac{2}{15}$$

29. $\boxed{2^4 \times 3^3 \times 7}$

$$3024$$

$$1008$$

$$504$$

$$252$$

$$252$$

$$126$$

$$63$$

$$31.5$$

$$3 \cdot 7$$

$$2^4 \cdot 3^3 \cdot 7$$

30. [77]

$$1 \times .3 = .3$$

$$1 - .3 = .7$$

$$.7 \times .1 = .07$$

$$.7 + .07 = .77$$

$$\frac{a+b}{c} = \frac{a}{c} + \frac{b}{c} = \frac{a}{c} \times \frac{1}{\frac{1}{c}}$$

$$\left[\frac{a+b}{c} \right] \frac{1}{c}$$

$$P \times 2 \times 2 = \text{mod } 1 \text{ to } 43$$

$$\left[\frac{P}{2} \right] \times$$

$$P = 2 \times P$$

$$\left[\frac{15101}{2} \right] \frac{1}{2}$$

$$15101 = 2 \times 7550 + 1$$

$$\left[\frac{15101}{2} \right] \frac{1}{2}$$

$$15101 + 1 = 15102$$

$$15102 - 15101 = 1$$

$$\left[\frac{15102}{2} \right] \frac{1}{2}$$

$$1 + 1 = 02$$

$$02 - 02 = 00$$

$$02 - 02 = 00$$

$$1 - 1 = 00$$

$$\left[\frac{1}{2} \right] \frac{1}{2}$$

34 of 96 b/c from 1/16 to 1/256

$$P \times 2 \times 2 = \text{mod } 1 \text{ to } 43$$

$$\frac{P}{2} \times \frac{1}{2} = \frac{P}{4}$$

$$\left[\frac{P}{4} \right] \frac{1}{4}$$

$$02 + 01 + 01 + 01 = 05$$

$$011:0510P = 05 + 02 + 02 + 01 + 01 + 01$$

$$\left[\frac{05}{2} \right] \frac{1}{2}$$

$$\frac{05}{2} = \frac{05}{2} \times \frac{1}{2} = \frac{05}{4}$$

$$\left[\frac{05}{4} \right] \frac{1}{4}$$

$$\frac{05}{4} = \frac{05}{4} \times \frac{1}{4} = \frac{05}{16}$$