

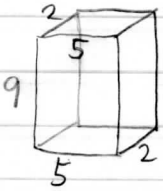
- Ⓑ 1. 12 months in a year

$\times 4$

48 months in 4 years

$+ 3$

51 months in 4 years and 3 months

- Ⓒ 2.  There are 6 sides, and 3 different sides.

$$\left( \begin{array}{|c|} \hline 9 \\ \hline 2 \\ \hline \end{array} \begin{array}{|c|} \hline 9 \\ \hline 5 \\ \hline \end{array} \begin{array}{|c|} \hline 5 \\ \hline 2 \\ \hline \end{array} \right) \times 2$$

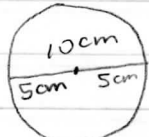
$$2((2)(9) + (5)(9) + (2)(5)) = \boxed{146 \text{ in}^3}$$


- Ⓐ 3.  $\frac{49}{3+2\frac{2}{3}} = \frac{49}{3+2(2)} = \frac{49}{3+4} = \frac{49}{7} = 7$

- Ⓒ 4. J J J      T T T T      1  
choose 1      choose 1      choose 1  
3 ways      4 ways      1 way  
 $(3)(4)(1) = \boxed{7}$  total ways

- Ⓔ 5. 2 hours = 120 minutes

$$5 \text{ minutes} \cdot \frac{1000 \text{ miles}}{120 \text{ minutes}} = \frac{5000 \text{ miles}}{120} = 41\frac{2}{3} \text{ mi.}$$

- Ⓒ 6.   $A = \pi r^2$   $r = 5 \text{ cm}$   
 $A = \pi(5 \text{ cm})^2 = \pi(25 \text{ cm}^2) = 25\pi \text{ cm}^2$

- Ⓐ 7.  Note: 1 is neither prime nor even.

- Ⓒ 8. Total of  $3+5 = 8$  fluid ounces

$$\frac{5 \text{ fluid oz tonic}}{8 \text{ fluid oz}} = \frac{5}{8} = 62.5\% \approx \boxed{60\%}$$

- Ⓑ 9. Ratio of tonic and dye does not change, because they are mixed evenly.

$$\frac{3 \text{ fluid oz dye}}{8 \text{ fluid oz}} = \frac{3}{8} = 37.5\% \approx \boxed{40\%}$$

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Ⓐ 10.  $\sqrt{256}$  : which number multiplied by itself is 256?  $(16)(16) = 256$  16

Ⓐ 11. Prime numbers less than 50 are:

2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47

15 numbers

Ⓒ 12.  $7789 = 190 + 10x - 1$

$$7789 = 189 + 10x$$

$$7600 = 10x$$

$$x = \boxed{760}$$

Ⓐ 13. NAME \_\_\_\_\_

Choose a letter and place in one of the four spaces. For the first space, there are four choices. We then have three choices left.

$$4 \cdot 3 \cdot 2 \cdot 1 = \boxed{24} \text{ ways}$$

Ⓒ 14.  $(3!)(4!) = 3 \cdot 2 \cdot 1 \cdot 4 \cdot 3 \cdot 2 \cdot 1 = \boxed{144}$

Ⓒ 15.  $\frac{5!}{3!} = \frac{5 \cdot 4 \cdot 3 \cdot 2 \cdot 1}{3 \cdot 2 \cdot 1} = 5 \cdot 4 = \boxed{20}$

Ⓐ 16. (10% of 101.0) is 10.1

10% of (10% of 101.0) is 10% of 10.1

10% of 10.1 is 1.01

Ⓐ 17.  $99 \text{ rev. } \frac{1 \text{ second}}{3 \text{ rev.}} = \frac{99}{3} \text{ seconds} = \boxed{33} \text{ seconds}$

Ⓐ 18.  $3.102 + 4.02x + 3.201$

$$= 4.02x + (3.102 + 3.201) \quad \text{combine like terms}$$

$$= \boxed{4.02x + 6.303}$$

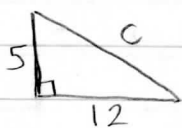
Ⓐ 19.  $765 > t + |-567|$

$$765 > t + 567$$

$$t + 567 < 765$$

$$t < 198 \longrightarrow \boxed{197} < 198$$

A20.



You can use the Pythagorean Theorem on a right triangle.

$a^2 + b^2 = c^2$ , where  $c$  is longest side

$$(5)^2 + (12)^2 = c^2 \quad 25 + 144 = c^2$$

$$c^2 = 169 \quad c = 13, -13 \leftarrow \text{negative length is meaningless here}$$

$$c = \boxed{13} \text{ cm}$$

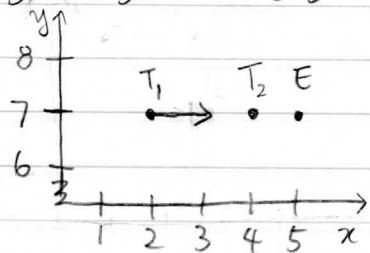
C21.

$$(2s^2)(s^5) = 2 \cdot s \cdot s \cdot s \cdot s \cdot s \cdot s = \boxed{2s^7}$$

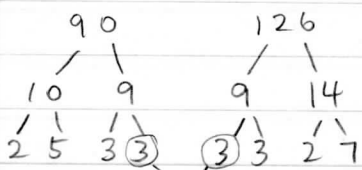
C22.

$$5^3 + 3^5 = 5 \cdot 5 \cdot 5 + 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 = 125 + 243 = \boxed{368}$$

D23.



B24.



greatest common prime factor

D25.

$$\frac{17}{20} \cdot \frac{5}{5} = \frac{85}{100} = 85\%$$

E26.

$$y + 7x = 3(x + 9)$$

$$y + 7x = 3x + 27$$

$$y = -4x + 27 \quad \text{when } y = mx + b, m = \boxed{-4}$$

B27.

$$V = \frac{4}{3}\pi r^3 \quad \text{If } d = 2, \text{ then } r = 1$$

$$= \frac{4}{3}\pi (1)^3 = \frac{4}{3}\pi \text{ cm}^3 \text{ per eyeball}$$

$$2\left(\frac{4}{3}\pi\right) = \boxed{\frac{8}{3}\pi} \text{ cm}^3$$

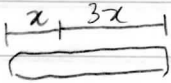
C28.

$$W = F \cdot d \quad F = 5 \text{ N}, d = 2 \text{ m}$$

$$W = (5)(2) = \boxed{10 \text{ J}}$$

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③ 29.



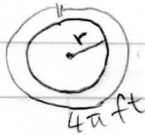
$$x + 3x = 12$$

$$4x = 12$$

$$x = \boxed{3 \text{ cm}}$$

④ 30.

$4\pi \text{ ft.}$



Circumference

$4\pi \text{ ft}$

$$C = 2\pi r = 4\pi$$

$$r = 2\pi$$