Solution Test 5

1. $\frac{20}{100}\times\frac{40}{100}\times x+1=\frac{10}{100}\times\frac{20}{100}\times x \quad \rightarrow x=\frac{50}{3}$

2.

$m=\frac{y_2-y_1}{x_2-x_1}=\frac{3-1}{2-0}=\frac{2}{2}=1$

3.

$a^2b=c \xrightarrow{c^2d=b} (a^2b)^2d=b \rightarrow a^4b^2d=b \rightarrow a^4bd=1 \rightarrow a^4=\frac{1}{bd} \rightarrow a^2=\frac{1}{\sqrt{bd}}$

4.

$mid\ point's\ coordinate\ of\ the\ line\ which\ pass\ through\ (1,2)\ and\ (3,4)=(2,3)$

$mid\ point's\ coordinate\ of\ the\ line\ which\ pass\ through\ (-5,-6)\ and\ (7,8)=(1,1)$

$$m=\frac{3-1}{2-1}=2$$

5.

$(x\blacksquare y)\circledast z=(x+y)\times z \rightarrow (3\blacksquare 2)\circledast 4=(3+2)\times 4=5\times 4=20$

6.

$143=11\times 13 \rightarrow X=11, Y=13 \rightarrow X+Y=11+13=24$

7.

$y-mx=4 \xrightarrow{(1,6)} 6-m=4 \rightarrow m=2$

8.

If $y=mx+a$ and $y=nx+b$, be two lines that never meet each other then $m=kn$

9.

$\frac{a+b}{2}=3 \rightarrow a+b=6 \rightarrow \frac{a+b+c}{3}=\frac{6+3}{3}=\frac{9}{3}=3$

10.

$x=y^{-2} \rightarrow y^2=\frac{1}{x} \xrightarrow{y^2=z^{-3}} \frac{1}{x}=z^{-3} \rightarrow z^3=x \rightarrow z=\sqrt[3]{x}$

11.

Let the sides of the triangle be $n-1\ and\ n\ and\ n+1$then

$n-1+n+n+1=12 \rightarrow 3n=12 \rightarrow n=4$.

The sides of the triangle are 3,4,5 so the area is $\frac{3\times 4}{2}=6$

12.

$a^2b^3=4 \xrightarrow{b=\sqrt{2}} a^2 2\sqrt{2}=4 \rightarrow a^2=\sqrt{2} \rightarrow a=\pm\sqrt[4]{2}$

13.

$f(-x) = -f(x) \rightarrow f(-x) + f(x) = 0 \rightarrow f(1) + f(-1) = 0$

14.

$0 < a < b < 1 \rightarrow \frac{1}{b} < \frac{1}{a} \rightarrow \frac{-1}{a} < \frac{-1}{b}$ $so\ E\ is\ false.$

15.

$p > 2$ is a prime number , so p is odd and q is even so $p^q = p \times \ldots \times p$ and there for is odd.

16.

$Sin(30) = \frac{AC}{10} \rightarrow AC = 10 \times \frac{1}{2} = 5$

17.

$f(x) = x^3 - x + 1 \rightarrow f(1) = 1$

18.

$x = X's\ age \qquad y = Y's\ age$

$\begin{cases} x = y + 10 \\ x + 3 = 3(y + 3) \end{cases} \rightarrow \begin{cases} x - y = 10 \\ x - 3y = 6 \end{cases} \rightarrow x = 12, y = 2 \rightarrow x + y = 14$

19.

$\frac{f(x) \times g(x)}{f(x) + g(x)} = \frac{(x+1) \times (x-1)}{x+1+x-1} = \frac{x^2-1}{2x}$

20.

$\frac{a+b}{2} = c \rightarrow a + b = 2c \rightarrow \frac{a+b+c}{3} = \frac{2c+c}{3} = \frac{3c}{3} = c$