

10.7-13
3rd Tr: g

1-3
⑩ If $(7^a)(7^b) = \frac{7^c}{7^d}$, what

is d in terms of $a, b,$ and c ?

$$7^{a+b} = 7^{c-d}$$

$$a+b = c-d$$

$$\begin{array}{r} -c \quad -c \\ \hline a+b-c = -d \end{array}$$

$$\begin{aligned} \therefore d &= -a-b+c \\ &= c-a-b \\ &= c-b-a \end{aligned}$$

⑫ If $20^w = 5^3 \times 4^3$,
what is w ?

$$\begin{array}{c} 5 \cdot 5 \cdot 5 \cdot 4 \cdot 4 \cdot 4 \\ \downarrow \quad \downarrow \quad \downarrow \\ 20^3 \end{array}$$

1-4
⑬ 1-50 (19)

$$\begin{array}{r} 4 \\ 14 \\ 24 \\ 34 \\ \hline 40 - 49 \rightarrow 10 \end{array}$$

⑰ If $16^{w+2} = 2^{11}$, what is w ?

$$16^{w+2} = \begin{array}{l} \cancel{2 \cdot 2 \cdot 2 \cdot 2} \cdot 16^2 \\ \cancel{2 \cdot 2 \cdot 2 \cdot 2} \cdot 16^2 \\ 2 \cdot 2 \cdot 2 \cdot 2 \cdot 16^2 \end{array}$$

$$16^{w+2} = 16^{2\frac{3}{4}}$$

$$\begin{aligned} w+2 &= 2\frac{3}{4} \\ w &= \frac{3}{4} \end{aligned}$$

⑱ $16^{w+2} = 2048$

⑲ $16^{w+2} = 2^{11}$

$$(2^4)^{w+2} = 2^{11}$$

$$\begin{array}{r} 4w+8 = 11 \\ -8 \quad -8 \\ \hline 4w = \frac{3}{4} \\ w = .75 \end{array}$$

1-5

⑳ If the average of $x, 5x,$ and $6x$ is 8, what is x ?

$$3 \cdot \frac{x+5x+6x}{3} = 8 \cdot 3$$

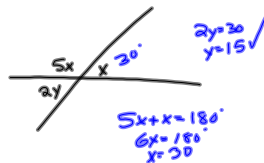
$$x+5x+6x = 24$$

$$12x = 24$$

$$x = 2$$

2-2

(12)



2-3

(15) $\frac{x}{3} = x^2$ What is x ?

I $-\frac{1}{3}$ II 0 III $\frac{1}{3}$

$$3 \cdot \frac{x}{3} = 3x^2$$

$$x = 3x^2$$

$$\frac{-x}{-x} \quad \frac{-x}{-x}$$

$$0 = 3x^2 - x$$

$$0 = x(3x - 1)$$

↓
 $x = 0$

↓
 $3x - 1 = 0$
 $\frac{+1 \quad +1}{3x = 1}$
 $\frac{3x}{3} = \frac{1}{3}$

$$x = 0 \text{ or } x = \frac{1}{3}$$

(17) If $3x = y + z$

What is $\frac{y}{z}$?

$$\frac{0}{6} = 0$$

$y = 6 - z$ $z + x = 8$

$y = 6 - 6$
 $y = 0$

$z + 2 = 8$
 $z = 6$

$$3x = 6 - z + z$$

$3x = 6$
 $x = 2$

10-7-13
4th Trig

SAT continued

1-3
⑩ $(7^a)(7^b) = 7^c$ what is d in terms of a, b, c?

$$7^{a+b} = 7^{c-d}$$

$$\underline{a+b = c-d}$$

$$a+b-c = -d$$

$$d = -a - b + c$$
$$= c - a - b$$

⑪ $20^w = 5^3 \times 4^3$ what is w?

$$5 \cdot 5 \cdot 5 \times 4 \cdot 4 \cdot 4$$

$$20^w = 20^3 \quad w = 3$$

1-4

⑫ ⑬

$$\begin{array}{r} 4 \\ 14 \\ 24 \\ 34 \\ 40 - 49 \Rightarrow 10 \end{array}$$

⑭ If $16^{w+2} = 2^n$, what is w?

① $16^{w+2} = 2048$

Use calc. to check A, B, C, D, E.

② $16^{w+2} = 2^{11}$

$$\downarrow$$
$$(2^4)^{w+2} = 2^{11}$$

$$2^{4w+8} = 2^{11}$$

$$4w+8=11$$

$$\underline{-8 \quad -8}$$

$$\frac{4w}{4} = \frac{3}{4}$$

$$w = .75$$

③ $16^{w+2} = 2^{11}$

↓

$$\left. \begin{array}{l} \boxed{2 \cdot 2 \cdot 2 \cdot 2} \\ \boxed{2 \cdot 2 \cdot 2 \cdot 2} \\ \boxed{2 \cdot 2 \cdot 2} \end{array} \right\} 16^{3/4}$$

$$2^7 = \frac{2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2}{2}$$

$$2^7 = 8^{2\frac{1}{3}}$$

(23) If the average of x , $5x$, and $6x$ is 8, what is x ?

$$3 \cdot \frac{x+5x+6x}{3} = 8 \cdot 3$$

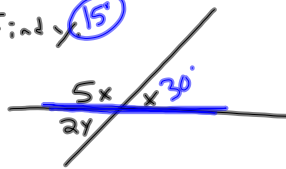
$$x+5x+6x=24$$

$$12x=24$$

$$x=2$$

2-2

(12) Find x 15°



$$2y=30$$

$$y=15$$

$$x+5x=180$$

$$6x=180$$

$$x=30$$

2-3

(15) If $\frac{x}{3} = x^2$, the value of x can be which of the following?

$$\text{I } \frac{1}{3} \quad \text{II } 0 \quad \text{III } \frac{1}{3}$$

$$\frac{3}{1} \cdot \frac{x}{3} = 3x^2$$

$$x = 3x^2$$

$$0 = 3x^2 - x$$

$$0 = x(3x-1)$$

$$x=0 \quad \text{or} \quad 3x-1=0$$

$$\frac{3x}{3} = \frac{1}{3}$$

$$x = \frac{1}{3}$$

2.3

(17)

If

$$3x = y + z$$

$$3x = 6 - z + z$$

$$y = 6 - z$$

$$3x = 6$$

$$x = 2$$

$$z + x = 8$$

$$z + 2 = 8$$

$$z = 6$$

Find $\frac{y}{z}$

$$\frac{0}{6} = 0$$

$$y = 6 - z$$

$$y = 6 - 6$$

$$y = 0$$