

II ( )

11

1. : 75 .

21 : 18  
 21 · 4/3 = 28 .  
 28 + 1 = 29 .  
 3- .  
 58 + 2 = 60  
 60 · 5/4 = 75 .

2. 1 .

$5^{2n+5} - 5^{2n+1} = 5^{2n+1} (5^4 - 1) = 624 \cdot 5^{2n+1}$ .  
 $n > 0$ .  
 $5^3 = 125 = 16 \cdot 7 + 13$ .  
 $5^{2n+1} + 8n$   
 $5^{2n+1} + 8n + 11$

$n = 0$  .  
 $5^{2n+1} + 8n + 11 = 16$ ,  
 $k \geq 0$ ,  $5^{2k+1} + 8k + 11$

16.  
 $5^{2k+1} + 8k + 11 = 16m$ .  
 $5^{2k+1} = 16m - 8k - 11$ .  
 $5^{2k+3} = 25 \cdot (16m - 8k - 11) = 400m - 200k - 275 = 400m - 8k - 8 - 11 - 192k - 256$   
 $5^{2k+3} + 8(k+1) + 11 = 400m - 256$  9.

3. :  $-\frac{1}{8}$ .

$\cos \frac{7f}{9} = -\cos \frac{2f}{9}$ .  
 $A = \cos \frac{f}{9} \cos \frac{2f}{9} \cos \frac{4f}{9}$ .

$$8A \cdot \sin \frac{f}{9} = 4 \sin \frac{2f}{9} \cos \frac{2f}{9} \cos \frac{4f}{9} = 2 \sin \frac{4f}{9} \cos \frac{4f}{9} = \sin \frac{8f}{9} = \sin \frac{f}{9}.$$

$$A = \frac{1}{8}.$$

$$\begin{aligned} \cos \frac{f}{9} \cos \frac{4f}{9} \cos \frac{7f}{9} &= \frac{1}{2} \left( \cos \frac{5f}{9} - \cos \frac{f}{3} \right) \cos \frac{7f}{9} = \frac{1}{2} \cos \frac{5f}{9} \cos \frac{7f}{9} + \frac{1}{4} \cos \frac{2f}{9} = \\ &= \frac{1}{4} \cos \frac{4f}{3} - \frac{1}{4} \cos \frac{2f}{9} + \frac{1}{4} \cos \frac{2f}{9} = -\frac{1}{8}. \end{aligned}$$

4.  $\quad \quad \quad : 2\sqrt{5}$

$\quad \quad \quad$  AC –  $\quad \quad \quad$ ,  $\quad \quad \quad$  ABC –  
 $\quad \quad \quad$ ,  $\angle ABC = 90^\circ$ .  $\quad \quad \quad \cos \angle BAC = 4/5$ .

ABD

$$BD^2 = 64 + 16 - 64 \cos \angle BAD = 144/5$$

$$BD = \frac{12}{\sqrt{5}}$$

ABD

$$BD = 2R \sin \angle BAD.$$

$$\sin \angle BAD = 3/5,$$

$$R = \frac{12}{\sqrt{5}} \cdot \frac{5}{6} = 2\sqrt{5}.$$

5.  $\quad \quad \quad$  :  $\quad \quad \quad$  10,

4  $\quad \quad \quad$ .

a, b, c, d, e.

10

$$A = \{(a, b, c); (a, b, d); (a, b, e); (a, c, d); (a, c, e); (a, d, e); (b, c, d); (b, c, e); (b, d, e); (c, d, e)\}.$$

B –  $\quad \quad \quad$ .  $\quad \quad \quad$  f: A B,

A

-

f,

, 10. - 10. 10 ,  
: 1 10

a: 1, 2, 3, 4;

b: 4, 5, 6, 7;

c: 1, 5, 8, 9;

d: 2, 6, 8, 10;

e: 3, 7, 9, 10.

10.  
4 ,  
,  
, 20.  
50 .  
50 - , 3 · 10 = 30 . 20, 4