

WORKSHEET 1

# FACTORGRAMS

KEY & Examples

## 2D FACTORGRAMS

- A. 5, 9, 6, 12, 24, 36
- C. 11, 16, 15, 28, 54, 144
- E. 17, 27, 21, 50, 48, 108
- G. 23, 81, 33, 75, 96, 225

- B. 7, 8, 10, 18, 40, 100
- D. 13, 32, 14, 45, 56, 72
- F. 19, 64, 22, 63, 80, 200

WORKING SPACE

Be sure to divide by Prime factors.

ex. 96

96 has 2 Prime factors

$\div 2$

$\div 3$

## EXTRA PROBLEMS

28  $\rightarrow$  14  $\rightarrow$  7

$\downarrow$   $\downarrow$   $\downarrow$

4  $\rightarrow$  2  $\rightarrow$  1

(i) If  $\rightarrow$  means  $\div 2$   
and  $\downarrow$  means  $\div 7$ ,  
what was the starting number?

(28)

36  $\rightarrow$  18  $\rightarrow$  9

$\downarrow$   $\downarrow$   $\downarrow$

12  $\rightarrow$  6  $\rightarrow$  3

$\downarrow$   $\downarrow$   $\downarrow$

4  $\rightarrow$  2  $\rightarrow$  1

$\rightarrow \div 2$   
 $\downarrow \div 3$

(36)

(iii) Hint. First decide what you would like the arrows to represent.

(ii) Complete the factorgram. (135)

$\rightarrow \div 3$   
 $\downarrow \div 5$

135  $\rightarrow$  45  $\rightarrow$  15  $\rightarrow$  5

$\downarrow$   $\downarrow$   $\downarrow$   $\downarrow$

27  $\rightarrow$  9  $\rightarrow$  3  $\rightarrow$  1

(iv) Predict the shapes of these factorgrams:

(a)  $54 = 3^3 \times 2^1$

(b)  $99 = 3^2 \times 11^1$

(c)  $192 = 2^6 \times 3^1$

54  $\rightarrow$  18  $\rightarrow$  6  $\rightarrow$  2  
27  $\rightarrow$  9  $\rightarrow$  3  $\rightarrow$  1

192  $\rightarrow$  96  $\rightarrow$  48  $\rightarrow$  24  $\rightarrow$  12  $\rightarrow$  6  $\rightarrow$  3  
64  $\rightarrow$  32  $\rightarrow$  16  $\rightarrow$  8  $\rightarrow$  4  $\rightarrow$  2  $\rightarrow$  1

WORKSHEET 1

# FACTORGRAMS

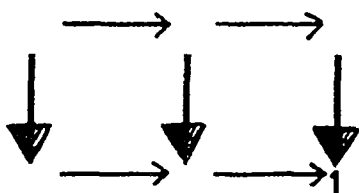
## 2D FACTORGRAMS

- A. 5, 9, 6, 12, 24, 36
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- E. 17, 27, 21, 50, 48, 108
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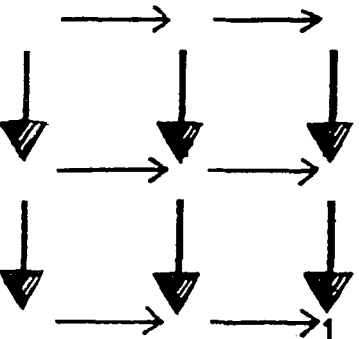
- B. 7, 8, 10, 18, 40, 100
- D. 13, 32, 14, 45, 56, 72
- F. 19, 64, 22, 63, 80, 200

WORKING SPACE

### EXTRA PROBLEMS

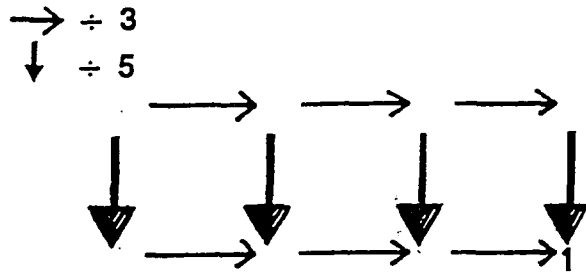


(i) If  $\rightarrow$  means  $\div 2$   
and  $\downarrow$  means  $\div 7$ ,  
what was the starting number?



(iii) Hint. First decide what you would like the arrows to represent.

(ii) Complete the factorgram.



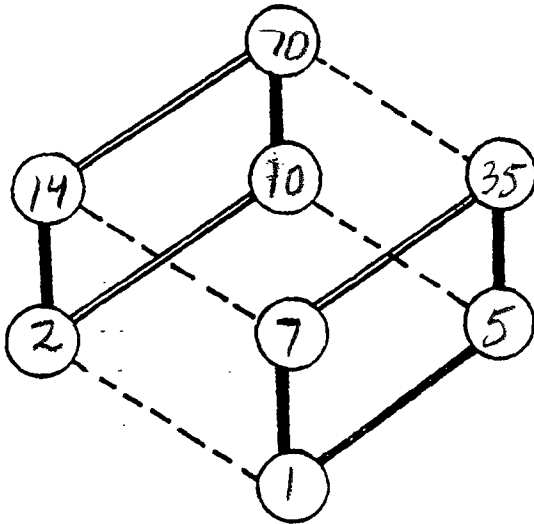
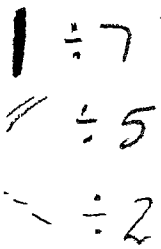
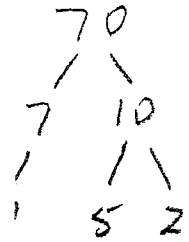
(iv) Predict the shapes of these factorgrams:

- (a)  $54 = 3^3 \times 2^1$
- (b)  $99 = 3^2 \times 11^1$
- (c)  $192 = 2^6 \times 3^1$

WORKSHEET 2

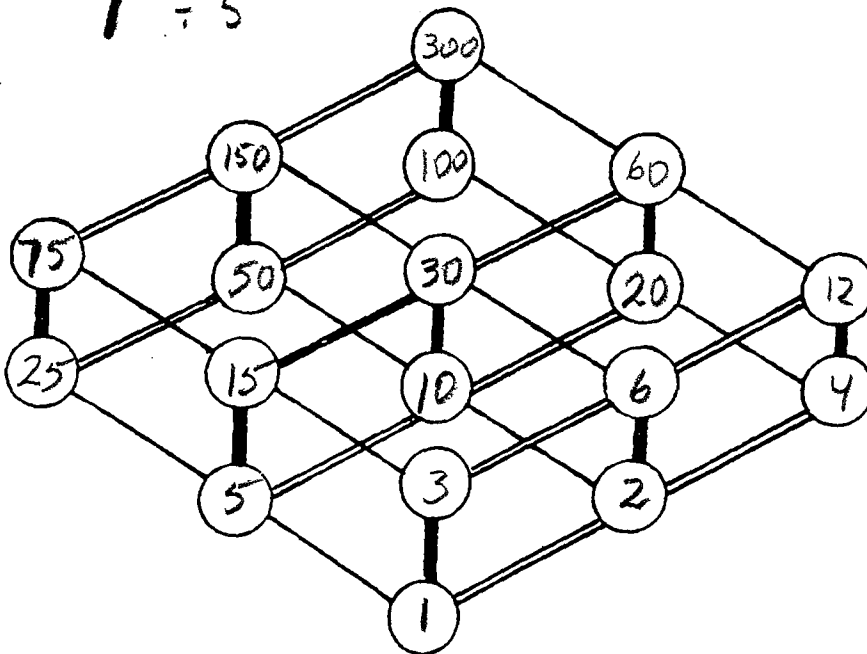
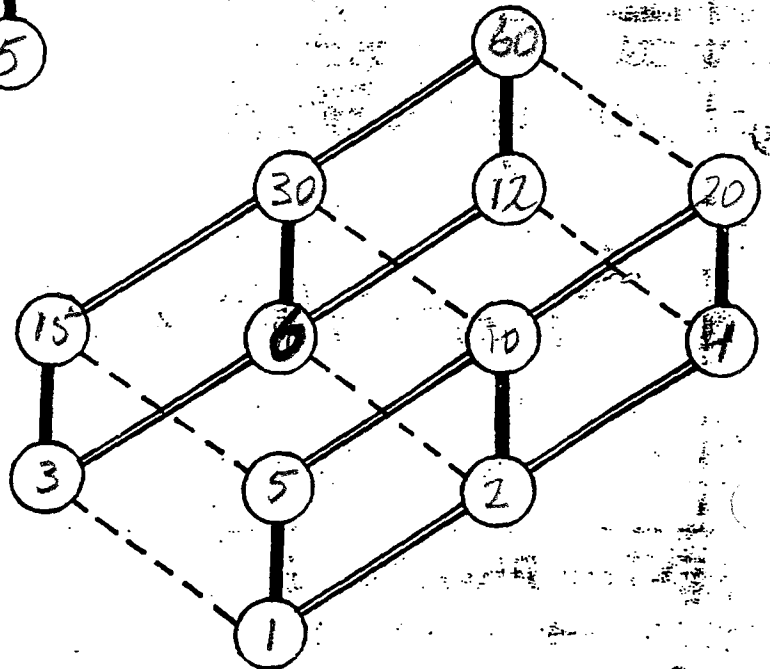
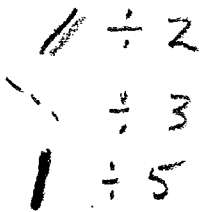
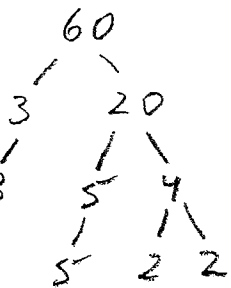
# 3D FACTORGRAMS

KEY  
&  
EXAMPLES

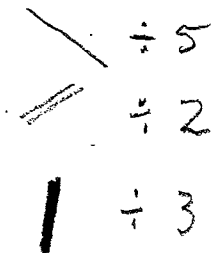


Try 30, 42, 66, 70,  
105, 110, 154, 165.

Try 60, 84, 90, 140,  
126, 132, 150.

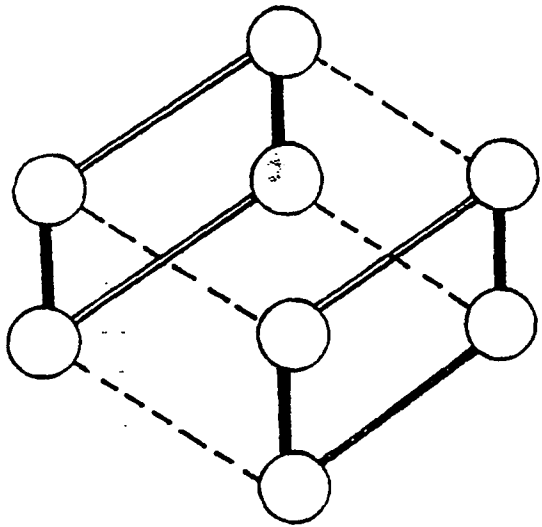


Try 300 and 180.  
Find others.



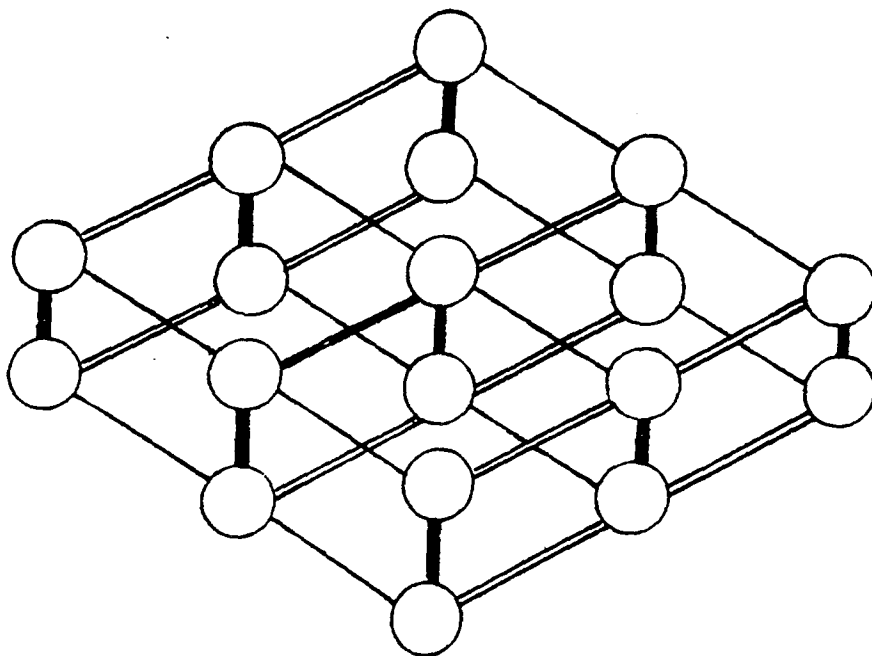
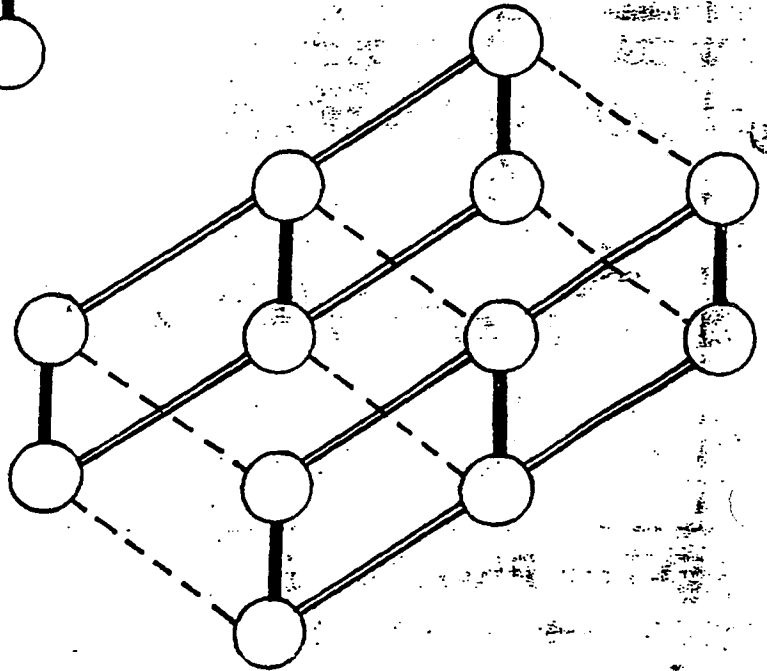
# WORKSHEET 2

## 3D FACTORGRAMS



Try 30, 42, 66, 70,  
105, 110, 154, 165.

Try 60, 84, 90, 140,  
126, 132, 150.



Try 300 and 180.  
Find others.