

Practice Test

Solutions Key

Let C represent the set of primary colors. Use C to answer questions 1 through 4.

1. Is C well-defined? yes

2. What is the cardinal number of C ? 3

3. List all the elements of C . $\{\text{red, blue, yellow}\}$


4. List all the distinct subsets of C .

$\{\}, \{R\}, \{B\}, \{Y\}, \{R, B\}, \{R, Y\}, \{B, Y\}, \{R, B, Y\}$

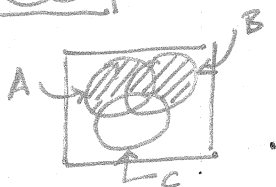
For questions 5 through 8, draw a Venn diagram of the situation.

5. $A \cup B \rightarrow$ 

6. $A^c \rightarrow$ 

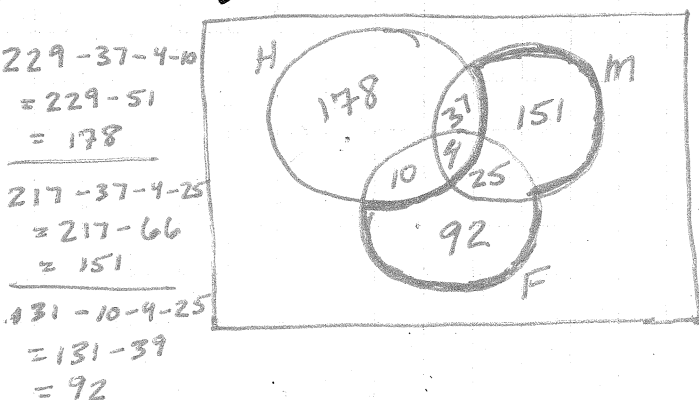
7. $B \cap A^c \rightarrow$ 

8. $(A \cup B) \cap C^c$



Given the following situation, answer the question at the end:

9. Joe owns a bookstore. At last inventory, he had the following in novels: 229 Historical Novels, 217 Mystery Novels, 131 Fantasy Novels, 41 books that were Historical mysteries, 29 Fantasy Mysteries, 14 Fantastical Histories, and 4 that were categorized as all 3. How many books were Mysteries or Fantasies but not Historical Novels?



$$\begin{aligned} Q: (M \cup F) \cap H^c \\ &= 151 + 25 + 92 \\ &= 268 \end{aligned}$$

For the sequences in questions 10 thru 13, find the next term.

10. 2, 3, 8, 17, 30, 47

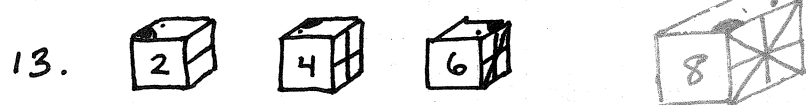
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11. A, B, F, Q, F

$\begin{matrix} & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \end{matrix}$

12. $\frac{1}{12}, \frac{1}{4}, \frac{1}{2}, \frac{5}{6}, \frac{5}{4}, \frac{7}{4}$

$\frac{2}{12} = \frac{1}{6}$

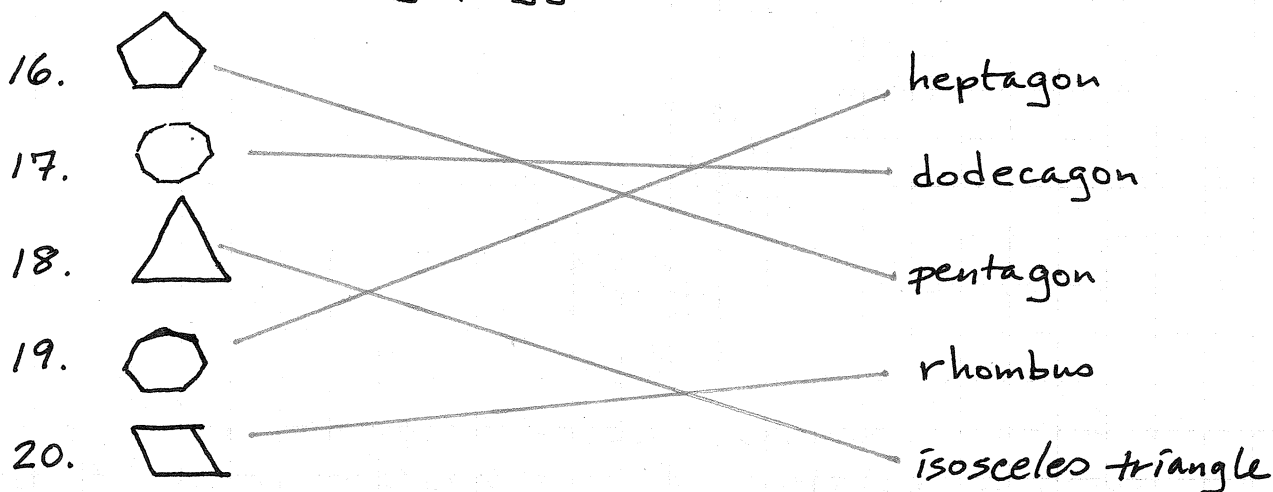


For the sequences in questions 14 & 15, find a_n . Given both the closed form & the recursive form of a_n .

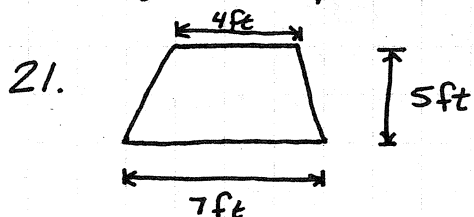
14. 6, 9, 12, 15, ... $a_n = a_{n-1} + 3$, $a_n = 3(n+1)$
 $= 6 + (n-1) \cdot 3$ OR

15. 64, 32, 16, 8, 4, ... $a_n = \frac{1}{2} a_{n-1}$, $a_n = 2^{7-n}$ OR
 $= 64(\frac{1}{2})^{n-1}$

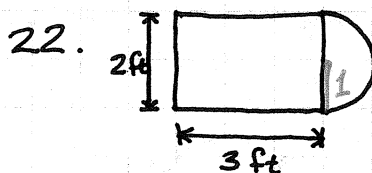
Match the following polygons to their names:



Find the area of the figures in questions 21 & 22.



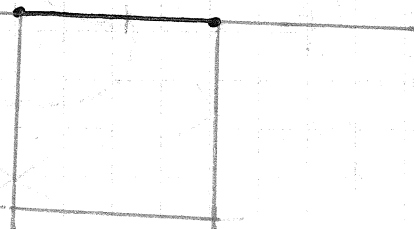
Area = $\frac{1}{2} \cdot 5(4+7) = \frac{5}{2}(11) = \frac{55}{2} \text{ ft}^2$



$\square = 2 \cdot 3 = 6 \text{ ft}^2$
 $\triangle = \frac{1}{2}(1^2 \pi) = \frac{\pi}{2} \text{ ft}^2$

Area = $(6 + \frac{\pi}{2}) \text{ ft}^2$

23. Construct a square whose side is



4.

A count, a duke, an earl, and a knight were discussing the nation's problems with the king. Their names were Royal, Silverton, Towman, Uppercrust, and Vincent.

From the clues below, match the name of each man with his title.

1. "The peasants are very troublesome," Royal said.

2. "Yes," Towman agreed, "but we might be, too, if we were as poor as they."

3. "You're both wrong, of course," said the king. "I don't find them to be troublesome at all."

4. "Oh, I didn't mean that they cause trouble," the duke corrected himself. The man who had agreed with him nodded.

5. "Aha! Fence-straddling as usual," the knight thought. "Let's see them get out of this one."

6. Vincent, trying to prevent an argument, said, "Your Highness, I think that Royal and the count meant that the poverty of the peasants distresses them, not that the peasants try to cause trouble."

7. Disappointed, but not wanting to seem to be disagreeable, Uppercrust said, "Yes, I'm sure that's what they meant, Your Highness."

1st time thru

Royal & Towman agree

King is not Royal or Towman

Duke → Royal or Towman

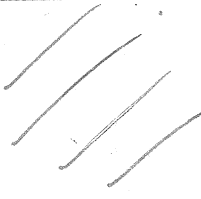
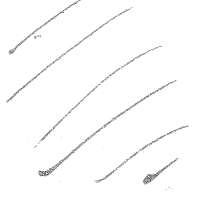
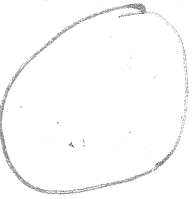
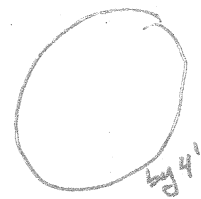
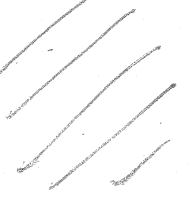
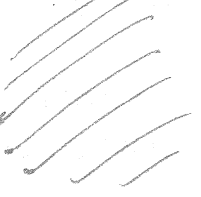
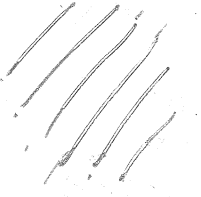
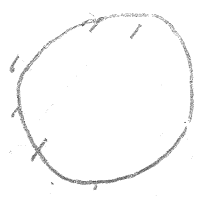
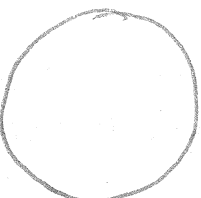
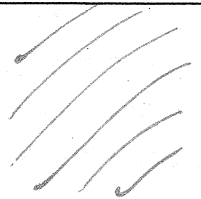
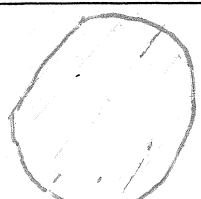
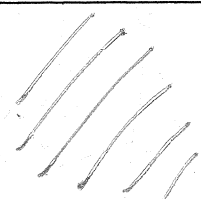
Knight is not Royal or Towman

Vincent is not the king or the count

Uppercrust not king

Chart for problem 4

the numbers show which clue was used to eliminate that choice
 6' means clue #6 the 2nd time around, and the cross-hatching means
 the options were eliminated by a solution.

	Royal	Silverton	Towman	Uppercrust	Vincent
count				6'	6'
duke		4		4	4
earl	6'		6'		
king	3		3	7	6
knight	5		5		

Answer:
 Royal - duke
 Silverton - king
 Towman - count
 Uppercrust - knight
 Vincent 7 - earl

↑
by 7'