REVIEW FOR TEST #1

Page 43 = 1 – 14, 21 – 26, 31 – 35

Page 111 = 1 – 14, 16 – 19, 21, 22

Page 43 – Chapter Review

Problem 1
Deductive reasoning – They start with a general rule that's true for **all** books and then come up with a specific conclusion.

Problem 2
Inductive reasoning – They take what's happened in the past and **assume** the pattern will continue in the future.

Problem 3
24 – add 5 each time

Problem 4
112 – multiply by 2 each time

Problem 5
21 – they added 1, then + 2, +3, +4, and +5, so now add 6

Problem 6
$\frac{3}{8}$ — If you think of $\frac{1}{2}$ as $\frac{3}{6}$, they just add 1 to the bottom (denominator) of the fraction each time

Problem 7
$\frac{5}{2}$ or 2.5 — change the sign and divide by 2 … or multiply by $-\frac{1}{2}$ each time

Problem 8
-200 — subtract 60 each time

Problem 9
42 – add the two previous numbers (here 16 + 26 = 42)

Problem 10
432 – it alternates multiplying by 3 and multiplying by 2; this time it's $2 \bullet 216 = 432$

Problem 11
Square with mark at bottom (same as first picture) – squares and circles alternate, and the mark moves one position each time

Problem 12
2 + 4 + 8 + 16 + 32 = 64 – 2 (This is correct, because 2 + 4 + 6 + 8 + 16 + 32 = 62.)

Problem 13
444 ÷ 9 = 37 (This is correct.)

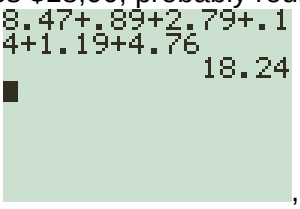
Problem 14

Select a number	3	7	0	-10	n
Double the number	6	14	0	-20	2n
Add 4 to the product	10	18	4	-16	2n + 4
Divide the sum by 2	5	9	2	-8	$\frac{2n+4}{2} = n+2$
Subtract 2 from the quotient	3	7	0	-10	$n+2-2=n$

You always get back the original number you started with.

Problem 21

There is no one correct answer.
An example is $8.50 + $1.00 + $3.00 + $0.00 + $1.00 + $5.00 = $18.50
The book estimates $18,00, probably rounding to the nearest dollar each time.



The actual sum is , so either one is pretty close.

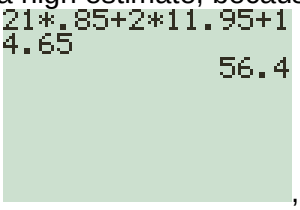
Problem 22

80 x 7 = $560
Note this will be a high estimate, because we rounded up both times.
The actual answer is $78 \bullet 6.85 = 534.30$, a little less than the estimate.

Problem 23

- 21 books at $.85 ➔ 20 X 1 = $20
- 2 chairs at $11.95 ➔ 2 x 12 = $24
- Plate at $14.65 ➔ $15

Total Estimate = 20 + 24 + 15 = $59. (The book's estimate is $60.)
Note that this will be a high estimate, because we rounded up every time.



The actual answer is , a little less than the estimate.

Problem 24

20 million X 30% = 6 million (a high estimate)
17 million X 30% = 5,100,000 (the book's estimate)
The actual answer is $.29 \bullet 17{,}487{,}475 = 5{,}071{,}367.75$ (an impossibly accurate number close to the book's estimate).

Problem 25

B – The average salary must be somewhere around $900 a week, so for 10 teachers this would be close to $900 a week. Multiply by 4, and you get $36,000.

Problem 26

C –

- 60 seconds in a minute X 60 minutes in an hour = 3,600 seconds in an hour
- We need to take 3,600 X 24
    - 3,600 X 20 = 72,000 (so it's got to be at least that big
    - 3,600 x 30 = 108,000 (which would be way too big)
    - So 86,000 is the only thing in the range. (In fact it's 86,400.)

Problem 31
We need to know the child's weight.

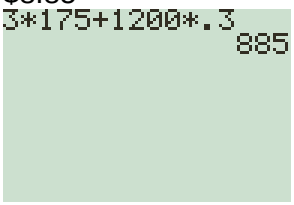
Problem 32
It's irrelevant that you handed the driver a $20 bill.
To find the cost of the trip,

- You pay $3.00 for the first mile.
- A six-mile trip has 10 half-miles after the included first mile.
- Take 10 X .50, and you have to pay $5.00 more.
- $3.00 + $5.00 = $8.00, the total cost of the trip. (You'd likely pay a tip on top of that.)

Problem 33
8 pounds

- If 28 people eat 2 frankfurters each, you need a total of 56 frankfurters.
- If each pound has 7 frankfurters, you need 56 ÷ 7 = 8 pounds.

Problem 34
$8.85



Problem 35
By choosing Plan A you will save $90

- Plan A cost = $.8 \bullet 1500 + 100 = 1300$
- Plan B cost = $.9 \bullet 1500 + 40 = 1390$

Page 111 – Chapter Test

Problem 1
{ 18. 19. 20, 21, 22, 23, 24 }
Note that the set just includes **natural** numbers, and they must be between 17 and 24, including 24 but not 17.

Problem 2
False
However, it would be correct to say $6 \in \{ 1, 2, 3, 4, 5, 6, 7 \}$ or $\{ 6 \} \subseteq \{ 1, 2, 3, 4, 5, 6, 7 \}$.
NOTE: This is pickier than what you'll see on the test. Remember "element" means one of the individual things that makes up a set, while "subset" means a small set that is contained in a (usually) larger set.

Problem 3
True
Both of these sets have seven elements, so they are equivalent.

Problem 4

True
You always ignore repeats, so these are the exact same set.
NOTE: Your test will not include anything that has repeats.

Problem 5
False
It's not a subset, because "d" is not an element of the second set.

Problem 6
True
3, 4, and 5 are all elements of the second set **AND** the first set is smaller than the second.
Remember $\subset$ (without the underline) means "proper subset", which means the first set has to be smaller than the second.

Problem 7
False
14 **is** one of the natural numbers from 1 to 40.

Problem 8
False
A set with "n" elements has 2^n subsets, so this set (with 5 elements) would have $2^5 = 32$ subsets.

Problem 9
False
This is sort of a trick question, because of the word "proper". The empty set is a subset of every set, but remember a **proper** subset has to be smaller, and the empty set isn't smaller than itself.

Problem 10
{ }
{ 6 }
{ 9 }
{ 6. 9 } … this one is not a proper subset, because it isn't smaller than the original set

Problem 11
$A \cup B$ = { a, b, c, d, e, f } … everything in either set

Problem 12
$(B \cap C)'$ = {a, b, c, d, f, g }
- First find $B \cap C$ = { e } … the overlap between the two sets
- The complement is everything except { e } … So the answer is { a, b, c, d, f, g }

Problem 13
$A \cap C'$ = { b, c, d }
- First find C' (what's not in C), which is { b, c, d, f }
- Now find what overlaps with a … So the answer is { b, c, d }

Problem 14
$(A \cup B) \cap C$ = { a, e }
- First find $A \cup B$ = { a, b, c, d, e, f }
- Now find what overlaps with C … So the answer is { a, e }

Problem 16
A' = { b, c, d, i, j, k } … what's not in A

Problem 17

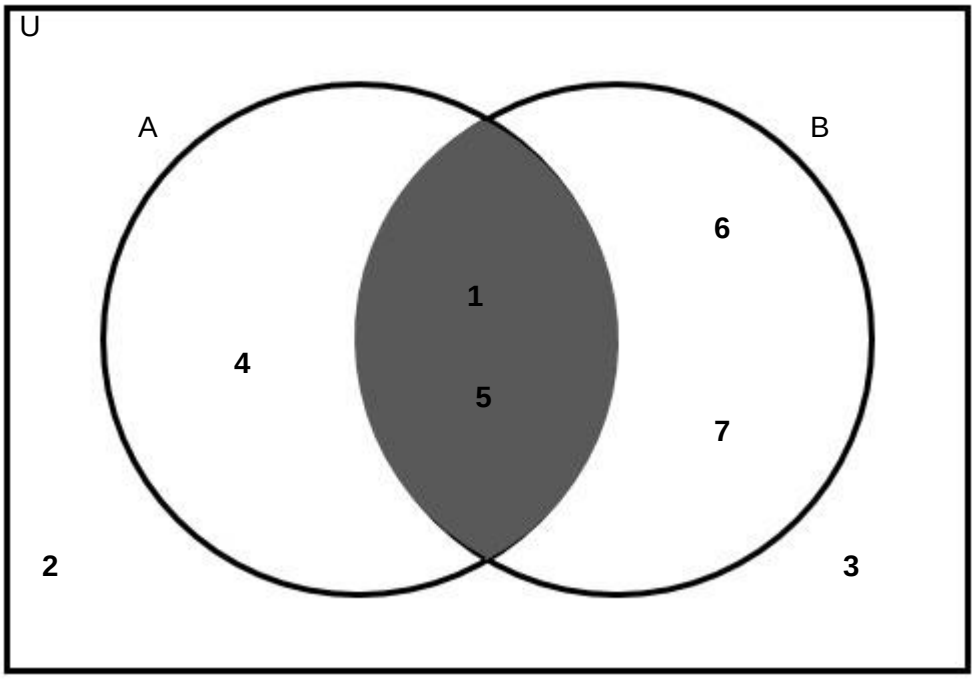
$A \cap B \cap C = \{ a \}$ … the very middle, in all 3 sets at once

Problem 18

$(A \cap B) \cup (A \cap C) = \{ a, f, h \}$

- It's everything in A that overlaps with either B or C.

Problem 19



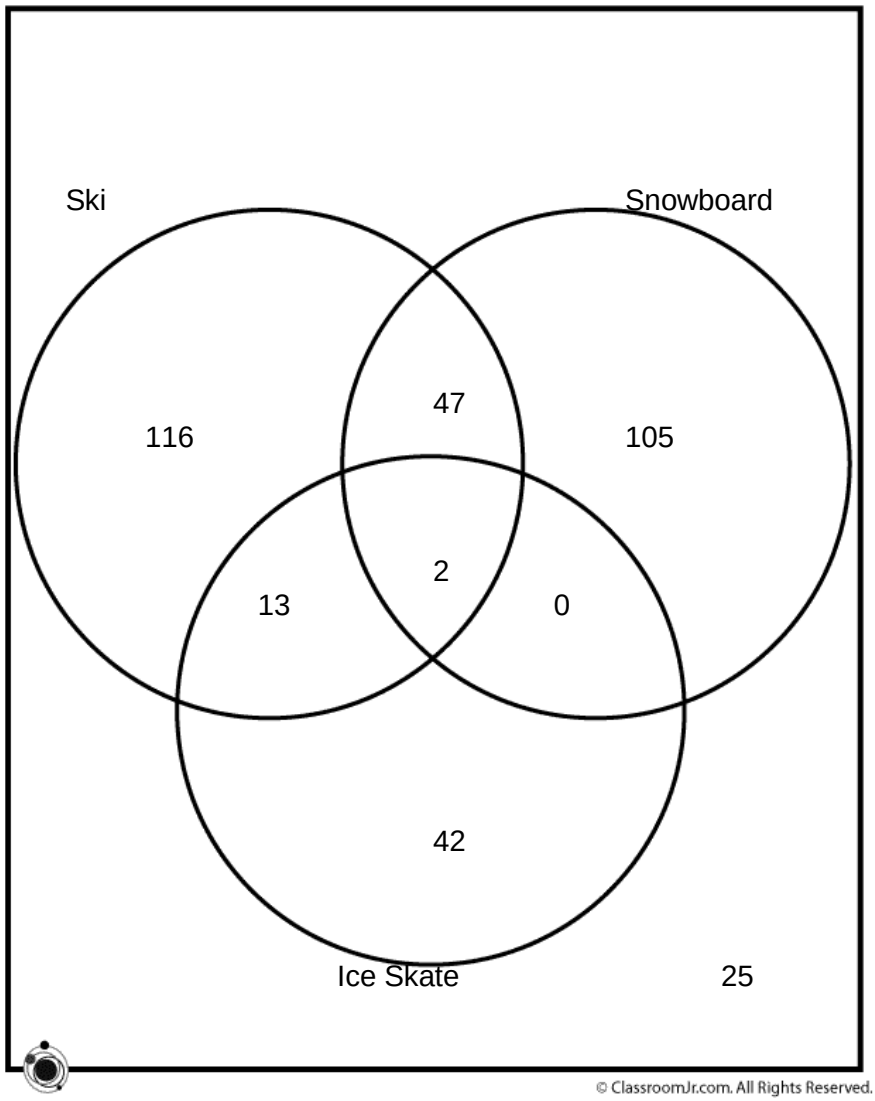
- Since 1 and 5 are part of both sets, they have to be in the middle of the Venn diagram.
- A also includes 4, so 4 goes in the circle labeled A.
- B also includes 6 and 7, so those numbers have to go in the circle labeled B.
- 2 and 3 aren't part of either A or B (but are in the universal set), so they go outside the circles.

Problem 21

a. Chaplin – V (man, entertainer, and long file)
b. Einstein – VII (man, not an entertainer, not long file)
c. King – IV (man, not entertainer, long file)
d. Roosevelt – I (not man, not entertainer, long file)
e. Sinatra – VI (man, entertainer, not long file)

Problem 22

a.



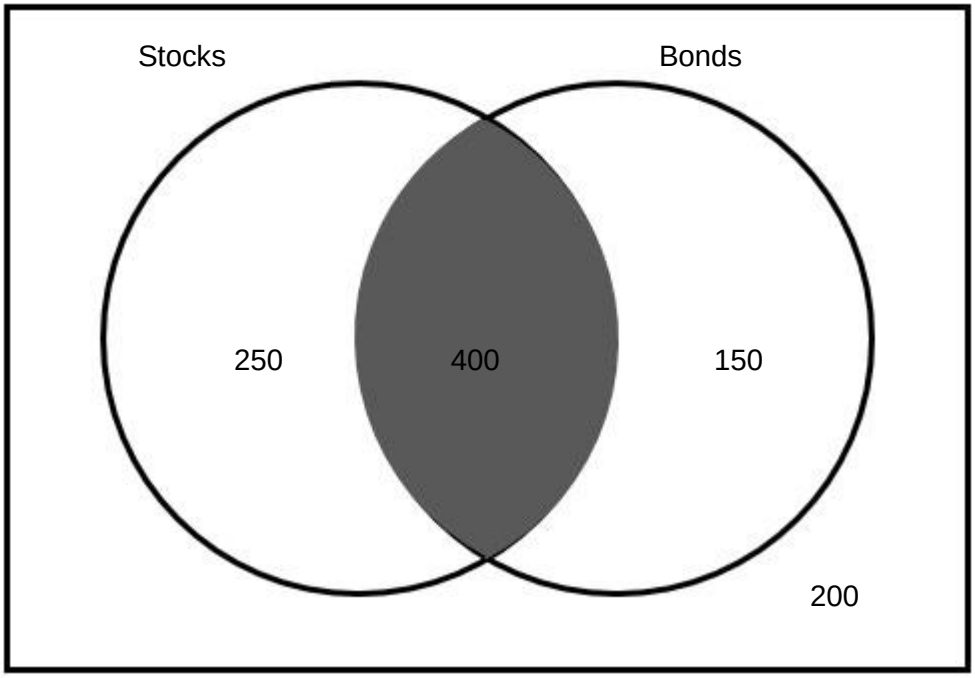
- Start with the middle … 2 liked all 3
- Now do the pairs (overlaps from the circles – subtract 2 from each of these numbers to get the part of the middle you haven't yet labeled)
    - 2 liked snowboarding and ice skating
    - 15 liked skiing and ice skating
    - 49 liked skiing and snowboarding
- Now fill in the main part of each circle (subtract off the middle part)
    - 178 liked to ski
    - 154 liked to snowboard
    - 57 liked to ice skate
- Finally find the outside (none of the three) – subtract 350 – everything else

So the answers are …

b. 263 (116 + 105 + 42)
c. 25
d. 62 (add up the middle overlaps)
e. 0
f. 147
g. 116

What you see on your test will more likely have just two topics, like #60 on Page 110:

Problem 60



- Start by filling in the middle … 400 **both** stocks and bonds.
- For the left side 650 – 400 = 250 for stocks only
- For the right side 550 – 500 = 150 bonds only
- For the outside 1000 – 250 – 400 – 150 = 200 neither

a. 250
b. 800
c. 200