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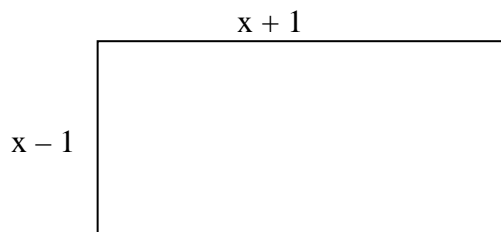
Ch 3 Review
Equations and Inequalities

1 The number of members of Parliament (MPs) elected from Ontario is 5 less than 4 times the number elected from Alberta. The total MPs from Ontario and Alberta is 125. How many MPs are elected from Alberta?

2 The world's largest rodent is the capybara of South America. Its mass is 8 kg more than 5 times the greatest known mass of a domestic cat. If the mass of a capybara can reach up to 113 kg. What is the maximum mass of a domestic cat?

3 Bianca must keep her phone bill below \$55/month. The basic charge is \$15, and it costs her \$2/min to phone her friend in Taiwan. How long can she talk to her friend each month?

4 If the given rectangle can have an area of at most 80 cm, what possible values can x take?



5 Mark finds the product of two consecutive natural numbers. Annie finds the product of the next two consecutive natural numbers. The difference between the two products is 66.
What two numbers has Mark chosen?

6 Solve in \mathbf{N} , the following inequalities.

a) $-2x + 3 \geq 7$

b) $-3x + 4 \leq -2$

7 The speed of a peregrine falcon is 50km/h faster than 3 times that of the cheetah. If the peregrine falcon can dive at up to 350 km/h, what is the cheetah's maximum speed? What is the cheetah's minimum speed?

8 For a home game the expenses for a soccer team are \$45 000. At an average of \$8 a ticket, what is the least number of tickets that must be sold to ensure a profit?

9 Which one of the following inequalities is equivalent to $x \leq -5$?

A) $-2x - 16 \leq -6$

C) $-3x - 3 \geq 12$

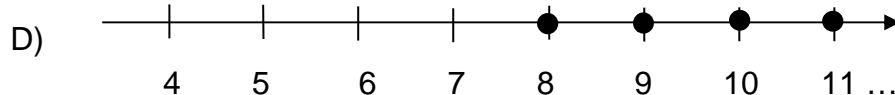
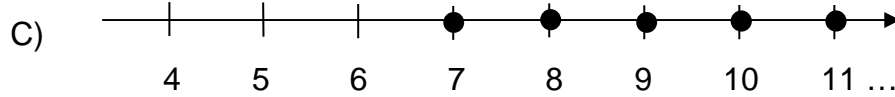
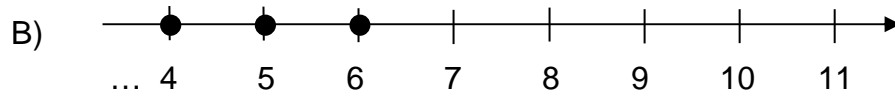
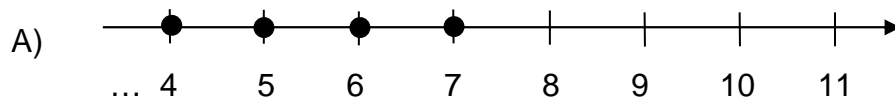
B) $-x \leq 5$

D) $-2x \leq 10$

10 Given the following inequality, where $n \in \mathbb{Z}$,

$$4n + 18 \geq 50$$

Which one of the following graphs corresponds to the solution set of this inequality?



Ann Serkey

1) let x be the number of MPs from Alberta
 $x + (4x - 5) = 125$
 $x = 26$

2) Let x be the mass of a domestic cat
 $5x + 8 \leq 113$
 $x \leq 21$

3) Let x be her minutes
 $15 + 2x < 55$
 $x < 20$ min

4) $(x + 1)(x - 1) \leq 80$
 $x^2 - 1 \leq 80$
 $x^2 \leq 81$
 $x \leq 9$

5) Let the numbers be : $x, x+1, x+2, x+3$
 $(x + 2)(x + 3) - (x)(x + 1) = 66$
 $x^2 + 5x + 6 - x^2 - x = 66$
 $4x + 6 = 66$
 $4x = 60$
 $x = 15$

6) a) $x \leq -2$; no solution
b) $x \geq 2$; { 2,3,4,.....}

7) Let x be the speed of the cheetah
 $3x + 50$ is the speed of a falcon

$$3x + 50 \leq 350$$
$$3x \leq 300$$
$$x \leq 100$$

Answer A cheetah's maximum speed is 100 km/h
A cheetah's minimum speed is 0 km/h

8) Let x be the number of tickets sold
 $8x > 45\,000$
 $x > 5625$

Answer: They need to sell at least 5626 tickets.

9) C

10) D