9.40 – Questions Handout #s 1 – 19 NOT 3, 7, 10, 13, 18

Communicate the Ideas

1. a) Write an inequality for the whole number solution set shown on the number line.
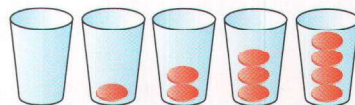

b) Does the number line show the whole number solution set for $5x < 30$? Explain.

2. Copy and complete the sentence for $m \geq 80\%$. Explain your choice of words.

You must score ▬▬▬ *on an exam to be considered an honours student.*

3. The visual shows a solution set for an inequality. Write the inequality. Can you write the inequality using any other symbol? Explain your answer.

4. Explain the difference between the solution sets for $a > 18$ and $a \geq 18$.

Check Your Understanding

Practise

For help with questions 5 to 7, refer to Example 1.

5. Write an inequality that models each situation. Define your variables.

a) More than 50 students were surveyed.
b) The newspaper reported fewer than six UFO sightings.

**6.** Write a mathematical statement to model each situation. Define your variables.

a) There are at least 16 slices of pizza.
b) Renting a video costs no more than $6.
c) Lisa lives more than 3 km from the school.

7. Describe a situation that can be modelled by each statement. Express the relationship mathematically using the correct symbol.

a) a is greater than 5.
b) b is less than or equal to 8.

For help with questions 8 to 10, refer to Example 2.

8. Write each model as an inequality using > or <.

a)

b)
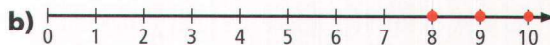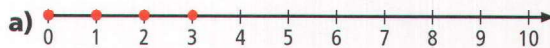
9. Use a number line to show the whole number solution set for each inequality.
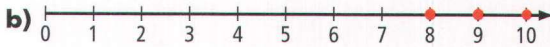
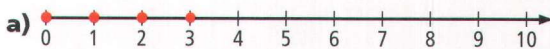**a)** $m > 12$ **b)** $9 > p$

10. Model each inequality. Then, write the whole number solution set.

a) $k < 10$ **b)** $19 > n$

For help with questions 11 to 13, refer to Example 3.

11. Write each model as an inequality using ≥ or ≤.

a)

b)

12. Use a number line to show the whole number solution set for each inequality.

   a) $m \geq 12$

   b) $9 \geq p$

13. Model each inequality. Then, write the whole number solution set.

   a) $k \leq 10$

   b) $19 \geq n$

For help with questions 14 and 15, refer to Example 4.

14. Miranda sells used books. If she triples her sales, she will still sell no more than 18 books.

   a) Model this situation with an inequality.

   b) How many books has Miranda sold?

15. There are fewer than 72 people at the dance. Forty boys are there.

   a) Model this situation with an inequality

   b) How many girls might be at the dance?

Apply

Chapter Problem

16. Students sign up to go on a canoe trip.

   a) Fewer than 30 students want to go. Write an inequality to model this.

   b) Show your solution on a number line.

   c) One teacher is needed for every six students. Write a number sentence to model the number of teachers needed.

   d) If four teachers are available, how many students might be allowed to go? Explain your reasoning.
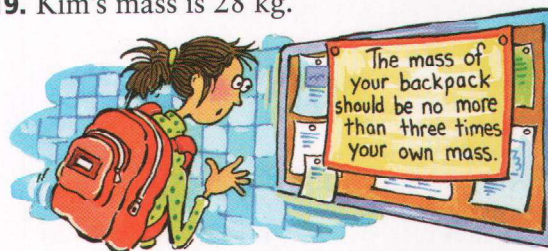
17. Write the whole number solution set for each inequality.

   a) $n - 8 < 14$

   b) $2t \geq 18$

   c) $15 \leq 3x$

   d) $6 > s + 2$

18. If Teddy's height triples, it will be greater than Sam's height.

   a) Model this situation using an inequality.

   b) Sam is 270 cm tall. How tall might Teddy be?

19. Kim's mass is 28 kg.

The mass of your backpack should be no more than three times your own mass.

   a) Write an inequality to model the mass of Kim's backpack.

   b) Write the whole number solution set to your inequality.

Try This! **20.** The cost to organize the 2000 summer Olympics was less than double the cost to organize the 2002 winter Olympics.

   a) Model this situation with an inequality. Define your variables.

   b) In 2000, it cost \$715 000 000 to organize the summer Olympics. How much might it have cost to organize the 2002 winter Olympics?

   c) In the 2000 summer Olympics, over 40% of the athletes were women. Write an inequality to model this statement. Show another way to model this statement. What information do you need to solve the inequality?

Extend

21. A healthy person normally has a temperature between 36°C and 38°C, when using an oral thermometer. When using an ear thermometer, the temperature readings can increase by up to 1%. Write two inequalities modelling the normal temperature readings with an ear thermometer. Explain your reasoning.