I.1 substitutes numbers for
variables in expressions, and
graphs and analyzes the relation
(PR-I.3.8)

I.2 generalizes a pattern arising
from a problem-solving context,
using mathematical expressions
equations, and verifies by
substitution

— translates between an oral or
written expression and an
equivalent algebraic expression
(PR-I.4.8)

◆ **conducts investigations and solves problems using
patterns**

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1. Find the next two numbers in each pattern.
  (a) 3, 6, 9, 12, ▨▇, ▨▇, ...
  (b) 3, 5, 7, 9, ▨▇, ▨▇, ...
  (c) 2, 5, 8, 11, ▨▇, ▨▇, ...
  (d) 1, 5, 9, 13, ▨▇, ▨▇, ...

2. Write and verify the equation to relate a number's
place in this sequence to its value. Predict the 50th
number.

$$3, 5, 7, 9, 11, 13, ...$$

3. Given the following diagram, find the pattern and write the
algebraic expression for the relationship between the term
number and the term. Make a different concrete/pictorial
representation of the pattern.

```
                              *
                    *         *
          *       * * *     * * * * *
                    *         *
                              *

Term number:   1       2         3
```

4a) "A number of square swimming pools have sides whose lengths are an exact number of metres. Surrounding the pools are square patio blocks that are 1 metre square.

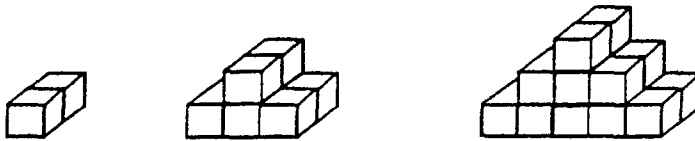"Use 2 colours of tiles to extend this pattern of patio blocks surrounding a pool."
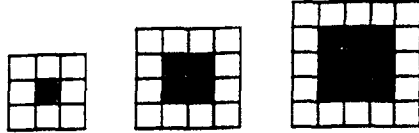
4b) "Describe the pattern and what the tenth pool and patio would look like."

5. Construct the following pattern:

a) Provide a written description of how to build the fourth term in the pattern. Include a drawing. Then describe the pattern.

b) Construct a chart showing the number of cubes required in each term.

c) In your journal (or elsewhere) record your solutions and reasoning for the following:
How many cubes do you need to construct the tenth term? The hundredth term? The nth term?

6. The table shows the number of light bulbs that would be found in an average home with each number of rooms.

Number of Rooms (r)	Number of Bulbs (b)
1	3
2	7
3	11
4	15

Find an equation that relates the number of light bulbs to the number of rooms. Verify the equation and predict the number of light bulbs that would be found in a house with ten rooms.

- 2 -

I.1 substitutes numbers for
   variables in expressions, and
   graphs and analyzes the
   relation – *continued (PR-I.3.8)*

I.2 generalizes a pattern arising
   from a problem-solving context,
   using mathematical expressions
   equations, and verifies by
   substitution – *continued*

— translates between an oral or
   written expression and an
   equivalent algebraic expression
   – *continued (PR-I.4.8)*

◆ **conducts investigations and solves problems using
   patterns (continued)**

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1. Find an equation that relates the number of
circles to the number of squares. Verify the
equation and predict the number of circles
that would be in a diagram with 12 squares.
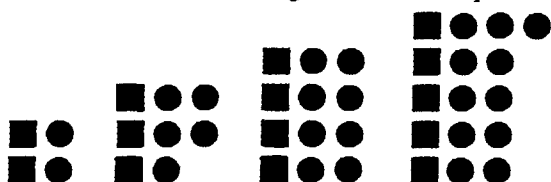
2. Given this graph, create a chart and a concrete or pictorial
representation of the pattern, and write the algebraic
expression for the relationship.
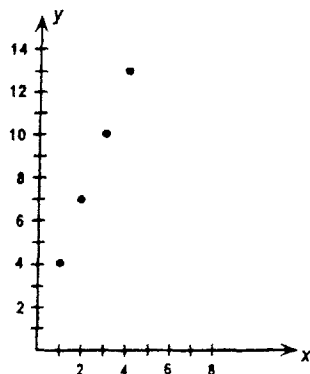
3. Given the algebraic equation, $t = 3s - 2$, create a concrete or
pictorial pattern.

(Teacher note: Students will have to generate a table of
values such as the one shown below.)

s	1	2	3	4	5
t	1	4	7	10	13

4. Evaluate for $x = 7$.
  (a) $3x$
  (b) $-5x$
  (c) $4x + 2$
  (d) $x^2 + 1$

5. Brett works at a rollerblade rental booth. The rental rates are shown in the table.

| Number of Hours (h)	Cost in Dollars (c)
1	6
2	10
3	14
4	18

  (a) Write an equation to relate the cost of renting rollerblades to the number of hours.
  (b) Predict the cost of renting rollerblades for 8 h.

6. Evaluate $3g + 4h - 2$ for each pair of values.
  (a) $g = 1$ and $h = 5$
  (b) $g = -3$ and $h = 2$

7. Evaluate each expression for $a = 3$ and $b = 5$.
  (a) $-4a$
  (b) $5b - 7$
  (c) $a^2 + 5$
  (d) $b^2 + a$

8. Lani and Sam want to book the Elbow Falls golf course for their wedding reception. The dining room charges a $200 flat rate plus $20 per guest. Calculate the cost of the reception if there are:
  (a) 100 guests
  (b) 150 guests
  (c) 200 guests

**9.** For the equation $3b + 1 = t$, t is the number of toothpicks needed to make a series of attached squares. The fourth term looks like this:

$$\boxed{\ }\boxed{\ }\boxed{\ }\boxed{\ }$$
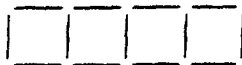
  a) Make the tenth term and sketch it.
  b) If you have 647 toothpicks, how many squares will be in the term?
  c) Will there be any toothpicks left over? Explain how you know.

10. Find an equation that relates the number of circles to the number of triangles. Verify the equation and predict the number of circles that would be in a diagram with 8 triangles.
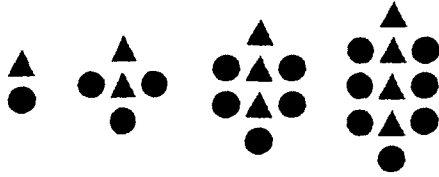
11. Is each statement true or false? Give an example to support your answer.

   (a) When you subtract a positive number from a negative one, the result is always negative.

   (b) When you subtract a positive number from a positive one, the result is sometimes negative.

   (c) When you subtract a negative number from a positive one, the result is sometimes negative.

   (d) When you add two negative numbers, the result is always positive.

   (e) When you add one negative number and one positive one, the sign is the same as the sign of the greater number.

12. A piece of glass is 2 m wide, 3 m long, and 7 mm thick. Write a ratio to compare:

   (a) width to length

   (b) thickness to length

13. Write the unit rate.

   (a) There are 2000 sheets of paper in four reams.

   (b) A bicycle travels 62 m in 6 sec.

   (c) A car uses 62 L of gasoline to travel 765 km.

14. Calculate.

   a) $\dfrac{1}{4} + \dfrac{1}{3} + \dfrac{1}{6}$ **b)** $\dfrac{3}{8} + \dfrac{1}{4} + \dfrac{1}{2}$

   c) $\dfrac{1}{2} + \dfrac{1}{3} - \dfrac{1}{6}$ **d)** $\dfrac{9}{10} - \dfrac{1}{2} - \dfrac{1}{5}$

   e) $2\dfrac{1}{2} + 1\dfrac{1}{5} - 1\dfrac{7}{10}$ **f)** $5\dfrac{5}{6} - 1\dfrac{5}{8} - 2\dfrac{3}{4}$

15. *Evaluate.*

   a. 6.9×10^2 **b.** 0.45×10^3

   c. $435 \div 10^2$ **d.** $26\ 783 \div 10^3$

   e. $38.2 \div 10 + 0.392 \times 10^2$

16. *Evaluate.*

   a. $\sqrt{144}$ **b.** $\sqrt{400}$ **c.** $\sqrt{256}$ **d.** $\sqrt{625}$

   e. $\sqrt{4.84}$ **f.** $\sqrt{0.81}$ **g.** $\sqrt{1.69}$ **h.** $\sqrt{0.25}$

23 . Find any errors and correct this solution.

Subtract:

$$4\frac{3}{5} - \frac{7}{8} = 4\frac{24}{40} - \frac{35}{40} \quad \text{LCD for 5 and 8 is 40.}$$
$$= 4\frac{64}{40} - \frac{35}{40}$$
$$= 4\frac{29}{40}$$

24 . The student marks for two first-aid tests are shown.

| 1st | 52, 66, 72, 84, 68, 72, 51, 64 |
| Test | 54, 81, 84, 67, 70, 73, 60 |

| 2nd | 68, 73, 82, 84, 78, 61, 93, 91 |
| Test | 70, 79, 80, 81, 90, 64, 89 |

a) Display the data on a back-to-back stem-and-leaf plot.
b) How many students wrote each test?
c) What was the median mark for each test?
d) What was the range of marks on each test?
e) How many students scored 70 or higher on the first test? on the second test?
f) How many scored lower than 80 on the first test? on the second test?

25 **a)** Draw the next diagram in this pattern.

| 1 | 2 | 3 | 4 |
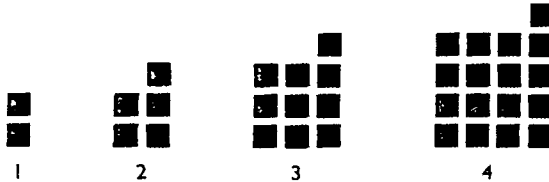
b) Predict the number of small squares in Diagram 6.
c) Which expression describes the number of squares for Diagram *d*? Explain your choice.

$d + 1$ $2d + 1$ $d^2 + 1$ $3d - 1$ $d^2 - 1$

26 For what integer values of *b* and *c* will the expression *bc* + 1 produce odd numbers?

I.1 substitutes numbers for variables in expressions, and graphs and analyzes the relation – *continued (PR-I.3.8)*

I.2 generalizes a pattern arising from a problem-solving context, using mathematical expressions equations, and verifies by substitution – *continued*

— translates between an oral or written expression and an equivalent algebraic expression – *continued (PR-I.4.8)*

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1. List several phrases associated with each operation.

(a) +   (b) −

(c) ÷   (d) ×

2. Write the mathematical expression. Use the variable n to represent the unknown number.

(a) A number is increased by sixteen.

(b) Five is decreased by a number.

(c) Two times a number is added to nine.

(d) The product of six and a number is reduced by twelve.

(e) The quotient of a number divided by ten is reduced by five.

(f) Double a number is diminished by eighteen.

(g) The sum of a number and eleven is divided by three.

(h) Four is subtracted from the product of seven and a number.

(i) Thirteen is added to triple a number.

(j) Fourteen minus twice a number is divided by nine.

3. Describe each expression in words.

(a) $p - 6$ (b) $7 + k$

(c) $3m$ (d) $\dfrac{c}{14}$

(e) $2n + 8$ (f) $\dfrac{a}{4} - 7$

(g) $\dfrac{g + 2}{6}$ (h) $5 - 9x$

(i) $11 + 3s$ (j) $\dfrac{4n + 10}{5}$

4. Write the equation. Use the variable n to represent the unknown number.

(a) A number reduced by fourteen is twenty-six.

(b) The difference between nine times a number and five is fifteen.

(c) Nine increased by the product of sixteen and a number results in ten.

(d) The quotient of a number divided by six is equal to the same number increased by twelve.

(e) Triple a number increased by seventeen gives the sum of the same number and twenty.

5. Write a mathematical expression for each phrase.

(a) An object's mass, m, is tripled.

(b) Henry's age in years, y, is doubled and then increased by nine.

(c) The amount in your bank account, a, will decrease to this after a fifty dollar withdrawal.

(d) Your age, x, will increase to this in seven years.

(e) The length of a race, r, is cut in half.

6. Alex is three years older than triple his son's age. If his son's age is s, write an expression for:

(a) Alex's age

(b) the sum of their ages

7. A printing company hired to print a yearbook charges a $200 flat rate, plus $1.50 per book.

(a) Write an equation you can use to calculate the cost of printing any number of yearbooks.
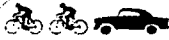
(b) How much would it cost to print 500 yearbooks?

8. Define each term.
  (a) expression
  (b) variable
  (c) substitute
  (d) evaluate
  (e) ordered pair

9. Describe the equation in words.
  (a) $r + 5 = 9$
  (b) $7x - 4 = 12$
  (c) $\frac{x + 5}{3} = 2x$
  (d) $3n + 5 = \frac{n}{2} + 22$
  (e) $12k - 3 = 10k + 11$

10. Write a problem about this pattern. Then write the equation you could use to solve your problem.

11. To calculate the total cost of publishing yearbooks, the Students' Council uses the equation $C = 5n + 12$, where C is the total cost and n is the number of yearbooks sold. Predict the total cost of publishing 40 yearbooks.

12. Write each decimal to the nearest thousandth and then add or subtract.
  (a) $\frac{3}{4} + \left(-\frac{1}{8}\right)$
  (b) $\left(-\frac{3}{5}\right) - \frac{2}{3}$
  (c) $\frac{4}{5} - \frac{7}{8}$
  (d) $\left(-\frac{11}{12}\right) + \left(-\frac{4}{3}\right)$
  (e) $4\frac{1}{5} + \left(-3\frac{1}{2}\right)$
  (f) $\left(-2\frac{3}{8}\right) - \left(-2\frac{9}{24}\right)$

13. Estimate or calculate mentally. Explain your thinking.
  (a) $0.45 - (-0.926)$
  (b) $(-7.2) + (-11.36)$
  (c) $(-1.3) - (-1.326)$
  (d) $5.2379 - 10.016$
  (e) $(-3.2) - 5.67$
  (f) $(-4.333) + 2.715$

14. Find the average.
  (a) $-3.7, -11.6, -0.7, -4.0$
  (b) $\frac{1}{3}, \frac{7}{12}, 1\frac{1}{2}, 6\frac{1}{3}, 3\frac{3}{4}$
  (c) $5.61, -5.88, 6.24, -5.03, -4.12, 2.7$

I.1 illustrates the solution process for 2-step, single-variable, first-degree equations, using concrete materials or diagrams *(PR-II.1.8)*

I.2 solves and verifies 1- and 2-step, first degree equations of the form

$x + a = b$

$ax = b$

$\frac{x}{a} = b, \ a \neq 0$

$ax + b = c$

$\frac{x}{a} + b = c, \ a \neq 0$

where a, b, and c are integers *(PR-II.2.8)*

---

1. Given the equation $2n + 1 = 11$, demonstrate the solving of the equation using algebra tiles. Explain how the concrete form is represented by the symbolic form.

2. Explain what is meant by the phrase "isolate the variable."

3. Draw a picture to show how you would use algebra tiles to model the expression $-3x + 4$. Colour negative tiles red and positive tiles black.

4. Draw a tile model to represent the equation $3x = 2$.

5. Draw a tile model to represent the equation

(a) $2x - 5 = 3$
(b) $6 = -5x - 4$
(c) $8x = 3 - 7$
(d) $-6x = 30$
(e) $-6x = 42 - 6$

6. Create three equations so that each one involves one or two operations.

7. Ask students to use algebra tiles or other concrete material to solve equations such as the following:

$$3x + 7 = 58$$

ALGE - TiLes

(clear) (dark) Squares represent

negative   positive   integers

clear (−)   Rectangles represent

dark   (+)   Variables

8. Tony has fifty coins, all pennies and nickels, in his pocket. If p represents the number of pennies, write an expression for:

(a) the number of nickels

(b) the total value of all the coins

9. A hockey team earns 2 points for a win and 1 point for a tie.

(a) Find an expression for the total number of points a team can earn in any number of games.

(b) Use your expression to calculate the total number of points each team would earn for the games represented in the table.

Team	Wins	Ties
Cougars	8	3
Saints	12	2
Tigers	15	8
Robins	22	4

10. When Paloma baby-sits, she earns $21 for 4 h, $26 for 5 h, $31 for 6 h, and $36 for 7 h.

(a) Write an equation that describes the relationship between the number of hours Paloma baby-sits and the number of dollars she earns.

(b) One of Paloma's customers wants to hire her for an entire week-end. How much will Paloma earn if she baby-sits from Friday night at 7 P.M. until Sunday at noon?

11. A piece of wood is $4\frac{1}{2}$ metres long. How many pieces can be cut from it if each piece is to be $\frac{3}{8}$ metres long?

12. Doug earns half as much as Marika. Marika earns $\frac{3}{4}$ as much as Greg. If Greg earns $20.00/h, how much does Doug earn?

13. Sarah's science teacher will use these percents to calculate her final mark:

Percent of Final Mark	
Tests	50
Assignments	20
Labs	20
Notebook	10

Sarah scored 73% for tests, 85% for assignments, 82% for labs, and 96% for her notebook. What will her final mark be?

I.1 illustrates the solution process for 2-step, single-variable, first-degree equations, using concrete materials or diagrams
— *continued (PR-II.1.8)*

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$x + a = b$

$ax = b$

$\frac{x}{a} = b, \ a \neq 0$

$ax + b = c$

$\frac{x}{a} + b = c, \ a \neq 0$

where a, b, and c are integers
— *continued (PR-II.2.8)*

1 Use each word in a sentence that explains its mathematical meaning. Give an example.
(a) variable   **(b)** verify
(c) isolate   **(d)** substitute

2. What operation would you perform on both sides to solve the equation?
(a) $c + 8 = 37$ **(b)** $d - (-5) = -7$
(c) $p - 5 = 12$ **(d)** $v - 8 = 27$
(e) $t + (-4) = 11$ **(f)** $36 + s = 181$

3. Solve and verify.
(a) $m + 6 = 19$ **(b)** $d + (-3) = -8$
(c) $q - 4 = 12$ **(d)** $b - (-5) = -11$
(e) $x - 15 = -16$ **(f)** $-3 + z = 16$

4. By what number would you divide both sides to solve the equation?
(a) $6x = 12$ **(b)** $2x = -8$
(c) $7z = -14$ **(d)** $11r = 22$
(e) $6n = -18$ **(f)** $8y = 64$

5. Solve and verify.
(a) $3x = 15$ **(b)** $2y = -12$ **(c)** $-8x = 16$
(d) $-15 = 5p$ **(e)** $-6t = -24$ **(f)** $12 = 3s$
(g) $2a = 24$ **(h)** $-25 = 5j$ **(i)** $-7x = -21$

6. Solve and verify.

   (a) $\frac{x}{2} = 2$ **(b)** $\frac{y}{2} = -4$ **(c)** $\frac{x}{3} = 7$

   (d) $-4 = \frac{p}{3}$ **(e)** $\frac{m}{4} = 28$ **(f)** $-3 = \frac{n}{5}$

   (g) $\frac{s}{10} = 5$ **(h)** $-2 = \frac{t}{12}$ **(i)** $\frac{u}{11} = 4$

7. Eighteen dollars is to be divided equally among three people. What is the equation you can use to find the amount each person would receive? Solve and verify.

$$3x = 18 \qquad 18x = 3 \qquad \frac{x}{3} = 18 \qquad \frac{x}{18} = 3$$

8. One-third of the sum of the side lengths of an equilateral triangle is 4.2 cm. What is the equation you can use to find the sum of the side lengths? Solve and verify.

$$3x = 4.2 \qquad \frac{1}{3}x = 4.2 \qquad \frac{1}{3}x + 4.2 = 0 \qquad x = \frac{1}{3}(4.2)$$

9. The average yearly snowfall in Vancouver is about 60 cm. This is about one-sixth of the average yearly snowfall in St. John's.

Write an equation you can use to find the average snowfall in St. John's. Solve and verify.

10. At 98 kg, a white-tailed deer has about 1.4 times the mass of an average cougar.

Write an equation you can use to find the mass of an average cougar. Solve and verify.

11. Explain what it means to solve an equation. Create an example equation with one operation and show how you would solve it.

12. Explain why it is important to verify your solution to every equation. Write an example equation with one operation. Show your solution and your verification.

13. The distance in metres travelled by an object is equal to $s \times t$, where s is the object's speed in metres per second and t is the time in seconds.

   (a) In June of 1992, Martin Brundle drove a Jaguar XJ220 at a speed of 96.94 m/s, setting a record for the fastest speed ever attained by a standard production car. At this speed, how far could the car travel in 10 s?

   (b) What was the speed of the Jaguar in kilometres per hour?

14. Rona sells magazine subscriptions. She earns $100 per week, plus $3 for each subscription she sells.

   (a) Complete the table of values.

Number of Subscriptions (s)	Dollars Earned in One Week (d)
5	115
10	
15	
20	

   (b) Make a graph to show the relationship.

15. If the average heart beats about 70 times per minute, how many times will it beat in one year?

16. If $8\frac{1}{2}$ pizzas are to be shared equally among 10 people, what fraction of a pizza will each person get?

17. Paul's father keeps track of incoming phone calls. One day, Paul received 12 calls in $2\frac{1}{2}$ h. His father received 3 phone calls in 1 h. Who received more calls per hour? How many more?

18. Justin said, "When you add or subtract two decimals, always look to see which number has more decimal places. The sum or difference will have the same number of decimal places as this number." Is Justin correct? Explain why his rule does or does not work.

19. Verify. Correct any errors.

   (a) $7.23 \times 6.1 = 44.103$

   (b) $(-4) \times 11.11 = 44.44$

   (c) $2.2 \div 0.22 = 10.36$

   (d) $(-4.2) \div (-0.6) = 0.7$

   (e) $(-8.3) \times (-5.12) = -42.496$

   (f) $88.88 \div (-2.22) = 44$

I.1 illustrates the solution process
for 2-step, single-variable, first-
degree equations, using
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– *continued (PR-II.1.8)*

I.2 solves and verifies 1- and
2-step, first degree equations of
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$ax + b = c$

$\frac{x}{a} + b = c,\ a \neq 0$

where a, b, and c are integers
– *continued (PR-II.2.8)*

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1. How is solving a two-step equation like solving
a one-step equation? How is it different?

2. Match each equation with the correct phrase.
Then solve the equation.
Equations:
(a) $\frac{x}{3} + 22 = 4$
(b) $3x - 4 = 22$
(c) $4x - 22 = 3$
(d) $22 = 4x - 3$
(e) $4 = \frac{x}{3} - 22$

Phrases:
(i) Four less than three times a number is
twenty-two.
(ii) Four times a number, diminished by three,
is twenty-two.
(iii) Twenty-two less than four times a number
is three.
(iv) Twenty-two less than a number divided by
three is four.
(v) Four is twenty-two more than one third of a
number.

3. Solve and verify.
(a) $2b - 3 = 9$
(b) $21b + 12 = 54$
(c) $2j + 7 = 11$
(d) $68 = 2k - 8$
(e) $24 = 5x + 4$
(f) $17 = 3x - 19$

4. Write and solve the equation.

(a) Six more than one-fifth of a number is twenty-six.

(b) Negative forty-one is eight less than three times a number.

(c) One thousand one hundred five is eight times a number, reduced by seventy-two.

(d) One and five tenths times a number less ten is negative twenty-two.

(e) Two thirds of a number increased by seven is eighty-four.

(f) A number divided by negative three and two tenths is forty-six.

5. Solve and verify.

(a) $2b + 1 = 7$

(b) $23 = 4m + 7$

(c) $4k + 5 = 21$

(d) $3n + 2 = 14$

(e) $22 = 4 + 3m$

(f) $2k + 8 = 12$

6. Solve and verify.

(a) $\frac{k}{7} - 9 = 40$

(b) $72 = \frac{s}{8} + 8$

(c) $-\frac{m}{6} + 4 = 6$

(d) $18.3 - \frac{c}{2} = 10.3$

(e) $-8 - \frac{n}{4} = 24$

(f) $-78 = \frac{b}{3} - 48$

7. Write the equation. Then solve and verify.

(a) A taxi ride costs $2.75 plus $1.25 per kilometre driven. How far can you travel for $25?

(b) Noria paid $18 to rent a canoe for the day. If the rental company charges a flat fee of $6, plus an hourly charge of $2, how long did Noria keep the canoe?

(c) Rick and Jeff both work at the community centre. One week, Rick worked for 5 h less than Jeff. The sum of their hours was 28. For how many hours did each person work?

3. Solve and verify each equation.

(a) $3k + 1.2 = 4.2$

(b) $104 = -10.3x + 1$

(c) $\frac{w}{3} + 3 = 6$

(d) $-\frac{3n}{2.4} - 6 = 42$

4. By what number would you multiply both sides to solve the equation?

(a) $\frac{n}{3} = 9$ (b) $\frac{n}{2} = -4$ (c) $\frac{y}{7} = 4$

(d) $\frac{m}{5} = -6$ (e) $\frac{t}{4} = -1$ (f) $\frac{n}{6} = 0$

10. Chris sells onion rings and fries at a snack bar. Onion rings cost \$1.40 and fries cost \$1.25.

(a) Chris often fills orders for groups of office workers. Write an expression he can use to calculate the cost of any order if everyone orders either fries or onion rings.

(b) After a soccer game, Chris sold 25 orders of onion rings and 30 orders of fries. How much did the customers pay in all?

11. Estimate. Explain the method you used.

(a) $1.5 \times (-0.15)$

(b) $0.59 \div 0.1$

(c) 2.13×0.6

(d) $4.915 \div (-0.7)$

(e) $(-8.2) \div (-0.916)$

(f) $(-2.98) \times (-3.714)$

12. Use a calculator to find each product or quotient to the nearest hundredth.

(a) $4.16 \times (-0.48)$

(b) $(-103.2) \div 43.66$

(c) $95.17 \times (-3.91)$

(d) $(-3.85) \times (-2.1)$

(e) $8.123 \div 2.45$

(f) $(-2.75) \div (-3.33)$

13. Bill earns \$15.85/h. If he earned \$570.60 in one week, how many hours did he work?

14. To attract customers, a store offered dresses on sale for less than cost price. Alicia calculated that for each dress sold the store had a (negative) profit of −\$8.50. On the day of the sale, she found that the store's total profit on these dresses was −\$76.50. How many dresses were sold?

I.3 creates and solves problems,
using first-degree equations
(PR-II.3.8)

◆ **translates word problems into symbolic equations, and
solves the equations**

◆ **creates and solves word problems**

1. Cole's father is 29 and his mother is 25. Cole's
father has lived 4 years more than 5 times
Cole's age. How old is Cole?
(a) Summarize the given information.
(b) What information does the problem ask
you to find?
(c) What information is not needed to solve
the problem?
(d) Write the equation you will use to solve the
problem.
(e) Solve the equation.
(f) Verify the solution to your equation.
(g) Write two other problems you could solve
using the given information.

2. If Bert's age is multiplied by 2 and divided by 3, you
find the age of his third son, Walter. If Walter is 58,
how old is Bert?

3. Some cows and geese live on a farm. The total number of
their legs is 48 and the total number of heads is 17. How
many cows live on the farm?

4. Nathan, Brittany, and Ryan all love to skate.
Last winter, Nathan went skating once less than
twice as often as Ryan, and twice more than
three times as often as Brittany. If Nathan went
skating 35 times, how many times did Brittany
go?

5. Elizabeth has twice as much money as Devon.
Devon has two dollars more than three times
the amount of money Alicia has. Devon has
$50. How much money does Alicia have?

6. There are 12 vehicles in a parking lot. There is 1 more
van than trucks. There are 5 more cars than trucks.
How many of each vehicle are in the parking lot?

7. Create a story problem using 2 operations that are not inverses of each other and whose answer is 12.

8. Create a story problem that involves the use of multiplication and addition.

9. Danielle's age is two years less than three times Nicole's age. Danielle is 25. Nicole's brother is 15. Find Nicole's age.

10. Amber has 22 coins of the same type. She also has some other coins worth $2.25. She has $45 in her savings account. If she deposits all her change in her savings account, the total deposit will be $3.35. What are Amber's 22 coins?

11. Ted has 15 coins of the same type. When you add the value of Ted's coins to $2.50, the result is $4.00. What coins does Ted have?

12. Five more than three-fourths of a number is 26. Find the number.

13. Leah is one year less than half her mother's age. Leah's sister is five years younger than Leah. If Leah is 26, how old is her mother?

14. Michael and Reese both collect model airplanes. Reese has 15 model airplanes. This is three less than twice the number of planes Michael has. How many does Michael have?

15. Two less than four-fifths of a number is 10. Find the number.

16. $\frac{b}{12} = 4$

State what b represents and write a story problem that can be solved with the above equation.

17 Mom's taxi charges were $3 plus $2.50 for every kilometre driven. If the total bill was $40.50, how far was the ride?

18 Four more than twice a number is 20. Find the number.

19 At the ocean's surface, seawater exerts a pressure of 100 kPa. For every 2 m of depth that an object submerges, the pressure increases by 15 kPa. If Sierra is wearing a watch that is guaranteed to survive 200 kPa, to what depth is the watch guaranteed?

20 Aunt Karina had a child on the same date for 3 consecutive years. If the sum of her children's ages is now 45, how old are her children?

21 Rex has 3 times as many sports cards as Karin. Jeff has 13 more cards than Karin. They have 113 cards in all. How many does each person have?

22 Darren and Hira both like to go cross-country skiing. Last year, Darren went on two-thirds as many ski trips as Hira. If Darren skied eight times, how many times did Hira ski?

23 Use some of this information to create a word problem. Write the solution to your problem and then exchange with a classmate. You can add more information if you like.

It is 300 km from Regina to Gull Lake. Chaplin is located at the halfway point along Highway 1. Deleho drives her car at the speed limit. Alan drives his van at a slower speed.

24 Fran works at a printer's, putting spiral bindings on books. She binds about 30 books per hour. When she first began working for the company, she was offered her choice of pay plan from this list:

Plan 1: $8.75 per hour
Plan 2: $4.75 per hour plus 13¢ for each book bound
Plan 3: 30¢ for each book bound

(a) Write an expression to determine how much money Fran will make in a week with each plan, if she works a different number of hours each week.

(b) Which pay plan do you think Fran chose? Why?