Practise: Model with Formulas

1. Rearrange each formula to isolate the indicated variable.

a) $I = Prt$ for t

b) $PV = nRT$ for V

c) $d = vt + \frac{1}{2}at^2$ for a

d) $y = mx + b$ for m

2. a) Rearrange the formula $I = Prt$ to isolate P.

b) Rearrange the formula $I = Prt$ to isolate r.

c) Rearrange the formula $I = Prt$ to isolate t.

Use the rearranged formulas from question 5 to complete the table.

Interest ($)	Principal ($)	rate (%)	time (years)
500	2000		4
	600	5.5%	2
120	1200	4%	
450		5%	9

Hint: Before using a percent in a formula, convert it to a decimal.

3. a) Rearrange the formula $d = vt$ to isolate v.

b) Rearrange the formula $d = vt$ to isolate t.

c) Use your rearranged formulas to fill in the table.

distance (m)	time (s)	velocity (m/s)
4	3	
6		2
	5	15
28		4
	11	11
85	5	

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Practise: Convert Linear Equations From Standard Form

Section 4.4

1. The linear equations are written in standard form. List the steps needed to rearrange each equation into slope y-intercept form.
   a) $x + y - 3 = 0$
   b) $-12x - 4y - 8 = 0$
   c) $-3x + 5y - 15 = 0$
   d) $8x - 2y + 11 = 0$

2. Write each equation in slope y-intercept form. Then, state its slope and y-intercept.
   a) $3x + y - 5 = 0$
   b) $-x + y = 0$
   c) $y - 4 = 0$
   d) $-2x + 5y - 15 = 0$

3. Verify your answers in question 2 using a CAS.

4. The line $2x + 5y + C = 0$ goes through the point (1, 7). Find the value of C.

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Section 4.4

5. The line $Ax - 2y + 4 = 0$ goes through the point (1, 3). Find the value of A.

6. The line $y = mx - 7$ goes through the point (3, 5). Find the value of m.

7. Wembley banquet hall charges a flat fee of $2000 for a rental, and a per-person fee of $42.
   a) Write a linear equation to model the total cost in dollars (C) of holding a banquet for n people.

   b) How much did it cost to hold a banquet for 250 people?

8. Chisholm banquet hall charges a flat fee of $2500 and a per-person fee of $44.
   a) Write a linear equation to model the cost in dollars (C) of holding a banquet for n people.

   b) How much will it cost to hold a banquet for 250 people?

   c) How does the total cost of a banquet for 250 people at Chisholm Hall compare to the total cost of a banquet for 250 people at Wembley Hall?