**Further Practice 2.1**

Basic

1. Solve the following equations.

(a) *x* + 3 = 8 (b) 2*y* $-$ 5 = -3

(c) 0.5 = 1.3 $- $2*u* (d) 3*v* $- $ = 

2. Solve the following equations.

(a) 3*x* = 6 + 2*x* (b) -5*y* + 4 = 8 $- $3*y*

 (c) 5*x* $-$ 4 = 7*x* + 10 (d) 2(3*y* + 5) = 15

(e) 2(5 $-$ *x*) = 8*x* (f) 3 $-$ *y* = (2*y* $-$ 9)

Intermediate

3. Solve the following equations.

(a) 3(2*m* + 5) = 18 $-$ *m* (b) -3(3*x* $-$ 7) = 10 $-$ 7*x*

(c) 3(3*y* $-$ 10) = 2(4 $-$ *y*) (d) -(2*n* + 3) = -4(9 $-$ 2*n*)

Challenging

4. Johan is thinking of a number. If he adds 5 to the number and then multiplies the result by 4, the answer is the same as subtracting 4 from the number and then multiplying the result by 13. Find the number that Johan is thinking.

5. Barbara and Freddy had the same number of stamps at first. After Barbara gave away 15 stamps to Sulaiman and Freddy bought 12 more stamps, Freddy had 4 times as many stamps as Barbara. How many stamps did each of them have at first?

**Further Practice 2.2**

Basic

1. Express each of the following as a single algebraic fraction.

(a)  +  (b) *y* + *y*

(c)  $-$  (d)  $-$ 

2. Solve each of the following linear equations.

(a)  + 3 = 14 (b)  $- $*y* = -1

(c)  (d) 

Intermediate

3. Express each of the following as a single algebraic fraction.

(a)  +  +  (b)  $-$+ 3*y*

(c)  (d) 

4. Solve each of the following linear equations.

(a)  (b) 

(c)  (d) 

(e) +  = 1 (f)  +  =−

Challenging

5. The numerator of a fraction is 5 less than the denominator. If 1 is added to both the

 numerator and denominator, the fraction becomes . Find the original fraction.

**Further Practice 2.3**

Basic

1. Given that *E* = *mc*2, evaluate *E* when *m* = 10 and *c* = 5.

2. For each the following formulae, make the unknown in the brackets the subject.

(a) 2*k* $-$3*a* = *M* (*M*)

(b) *x* $-$ 3*y* = *z* (*y*)

(c) *W* = (1$-$ *g*)*x* $-$ *b* (*g*)

(d) *s* =  (*t*)

(e) *u* = *vx* $-$ *p* (*v*)

(f) *A* = 2π*a*3*b* (*b*)

(g) *x*2 = *y*2 + *c*, *y* > 0 (*y*)

(h)  (*y*)

Intermediate

3. For each of the following formulae, make the unknown in the brackets the subject.

(a)  (*y*)

(b)  (*c*)

4. For each of the following formulae, make *y* the subject and find *y* given

that *x* = 4 and *z* = 5. Give your answer correct to 3 significant figures where necessary.

(a) *x*2 = 2*y*2(3 + 5*z*) (*y*)

(b) 2*x* + *y* = 3(2*z* $-$ *xy*) (*y*)

Challenging

5. Temperature measured in degrees Fahrenheit (o*F*) can be converted to degrees

 Celsius (o*C*) using the formula *F* = *C* + 32.

(a) Make *C* the subject.

(b) Given that on a particular day, the minimum temperature in Brunei was 77 oF and

 that in Singapore was 26 oC, which country had a lower temperature?