

## Themes 1-3 Revision

1) Simplify fully

a)  $2x + 5x - x$

b)  $5x \times 8$

c)  $4x \times 7x$

d)  $2x + 3y + 5x - y$

e)  $3x - 5y - 6x - 8y$

f)  $\frac{12y}{4}$

2) If  $x = 4$      $a = 2$      $b = 6$      $t = -1$     find:

a)  $xa - t$

b)  $\frac{x}{a} + b$

c)  $b + 2a$

3) Solve for  $x$

a)  $2x - 1 = 6$

b)  $\frac{x}{7} = 8$

c)  $5x + 1 = 16$

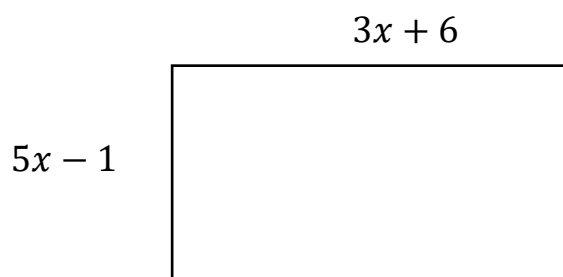
d)  $\frac{x}{3} - 1 = 2$

e)  $x + 3 = -5$

f)  $2x - \frac{3}{4} = \frac{1}{6}$

4) Jess is 3 years younger than Erin, who is twice as old as Sophie.  
The total of their ages is 37. Form an equation to find out how old they are.

5) The perimeter of the following rectangle is 90cm.  
Form an equation to find  $x$



6) Which of the following are true or false?

a)  $-2 + 7 = 7 - 2$

b)  $t + t + t = t^3$

c)  $4 \div 5 = 5 \div 4$

d)  $6 \times 4 = 6 + 6 + 6 + 6$

e)  $-2 + 3 + 7 - 8 = 7 + 3 - 2 - 8$

7) Evaluate

a)  $0.34 \times 10000$

b)  $\frac{5}{6} - \frac{1}{9}$

c)  $5 \div 0.01$

d)  $120\% + 4\frac{3}{10}$

e)  $\frac{4}{7}$  of 42

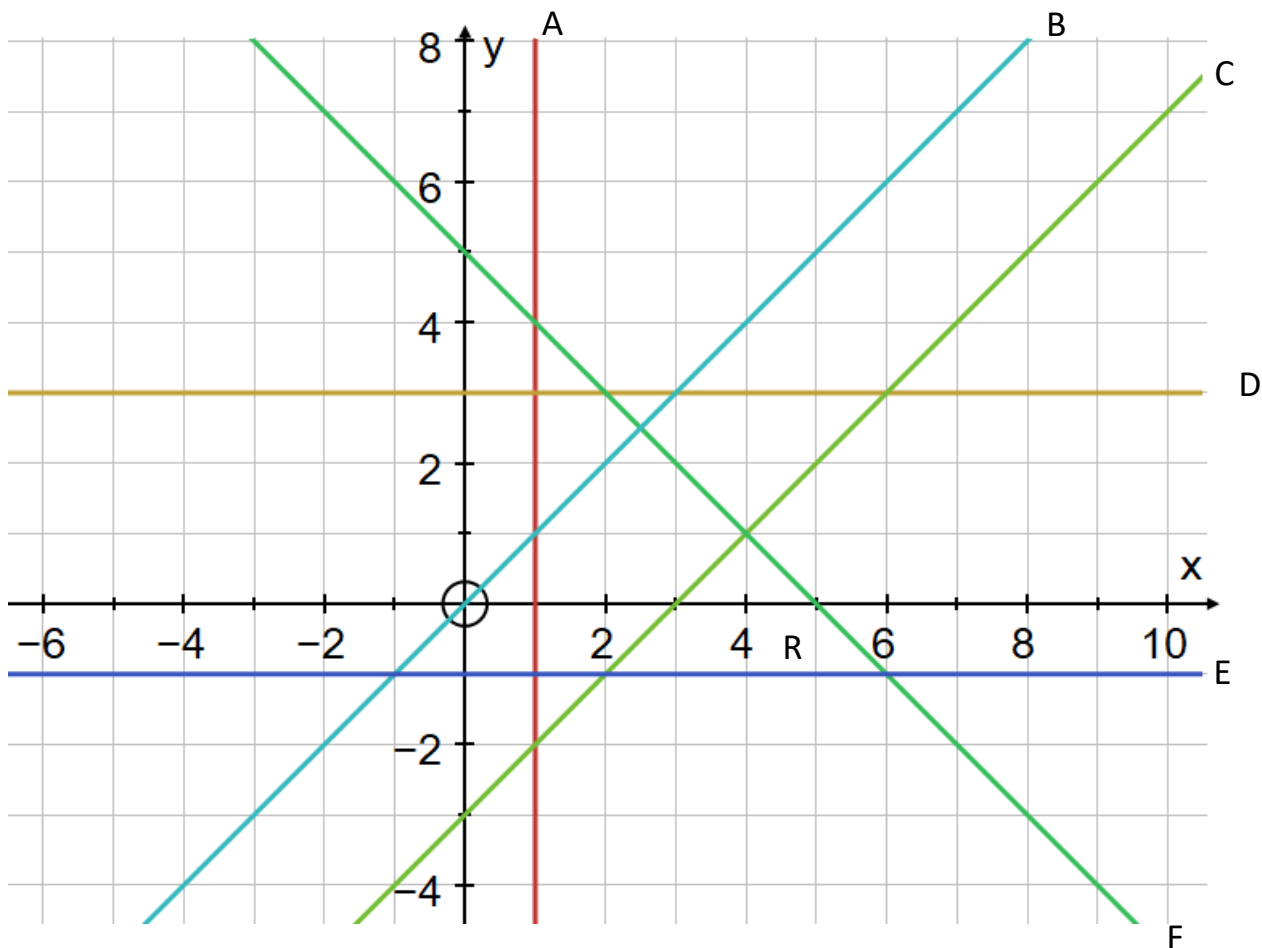
f) 85% of £3000

g)  $1.03 - 0.693$

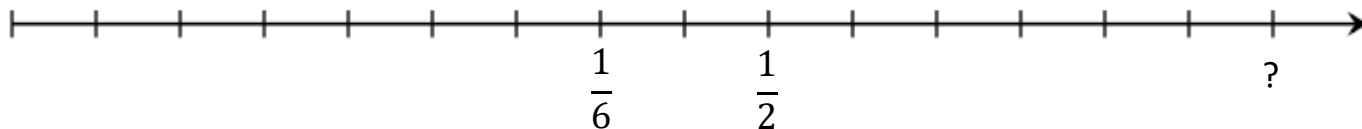
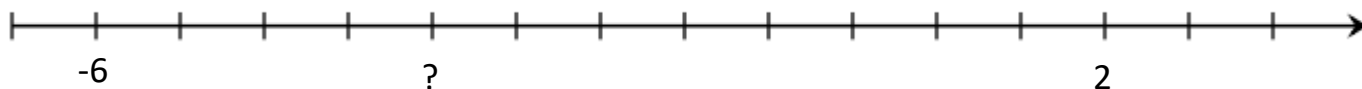
i)  $-3 + -11$

j)  $8 - -14$

8) Find the equation of the lines on the axes below



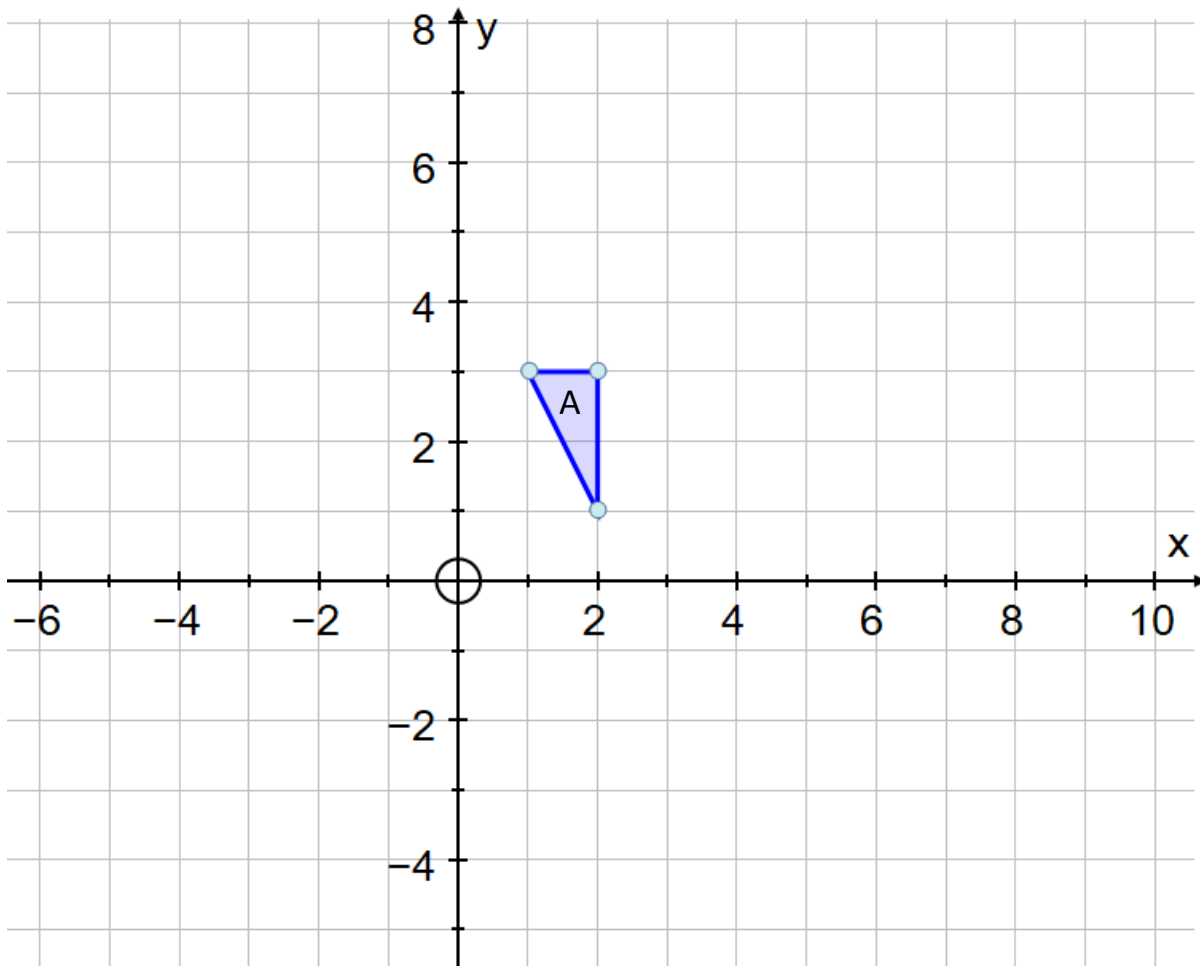
9) Find the numbers shown by “?” on the following number lines



10) Convert the following into the format given in brackets after

- |                                  |                       |                              |
|----------------------------------|-----------------------|------------------------------|
| a) $\frac{11}{20}$ (decimal)     | b) 0.782 (percentage) | c) $4\frac{5}{6}$ (improper) |
| d) $\frac{90}{7}$ (mixed number) | e) 34% (fraction)     | f) 0.9% (decimal)            |

11) Shape A is given below

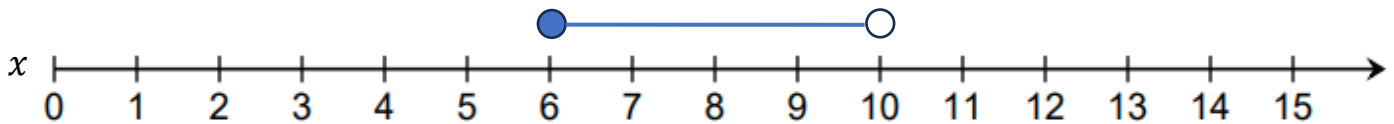


- a) reflect A in the line  $x = 4$  to get B
- b) translate A by  $\begin{pmatrix} -3 \\ 2 \end{pmatrix}$  to get C
- c) reflect A in  $y = -x$  to get D

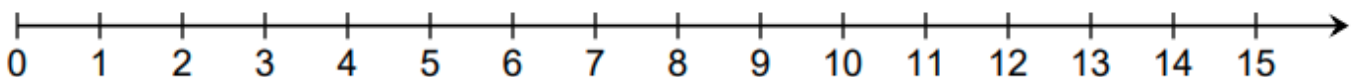
12) Find the missing terms in these linear sequences

- a)  $-8, -6, -4, ?, ?, \dots$
- b)  $18, ?, ?, ?, 24, \dots$

13a) A set of numbers is given on the number line below. Use an inequality to describe the set of numbers.



b) Represent  $x > 3$  on the number line below



- 14) Write  $\frac{4}{5}$  as a fraction of 2.5
- 15) 60% of a number is equal to 144, find 45% of the number.
- 16) Increase 72 by 35%
- 17) Evaluate:
- a)  $5 \times 7 - 3 \times 9$                       b)  $8 \times 3^2$                       c)  $\sqrt{225}$
- d)  $9 + \frac{15-3}{6-2}$                       e)  $8 - (3 + 1)^2$                       f)  $80 + \sqrt[3]{16 + (12 - 1)} \times 3$
- 18) Place the following numbers in ascending order  
 $\frac{7}{8}$     0.9    -3     $1\frac{4}{5}$      $-\frac{3}{4}$     0
- 19) Place a set of brackets in the calculation below to make it correct  
 $14 - 3 \times 7 - 4 = 5$
- 20) Evaluate
- a)  $5\frac{1}{4} - 3\frac{5}{6}$                       b)  $\frac{9}{10} + \frac{7}{15}$                       c)  $2\frac{1}{2} + 3\frac{2}{3}$

Answers

- 1)  $6x$  b)  $40x$  c)  $28x^2$  d)  $7x + 2y$  e)  $-3x - 13y$  f)  $3y$  2a) 9 b) 8 c) 2
- 3a)  $\frac{7}{2}$  b) 56 c) 3 d) 9 e) -8 f)  $\frac{11}{24}$  4) 8,13,16 5) 5 6a) T b) F c) F d) T e) T
- 7a) 3400 b)  $\frac{13}{18}$  c) 500 d)  $5\frac{1}{2}$  e) 24 f) 2550 g) 0.337 i) -14 j) 22 8a)  $x = 1$
- b)  $y = x$  c)  $y = x - 3$  d)  $y = 3$  e)  $y = -1$  f)  $x + y = 5$
- 9a)  $-\frac{10}{3}$  b)  $1\frac{1}{2}$  10a) 0.55 b) 78.2% c)  $\frac{29}{6}$
- d)  $12\frac{6}{7}$  e)  $\frac{17}{50}$  f) 0.009 11) at the end
- 12a) -2, 0 b) 19.5, 21, 22.5
- 13a)  $6 \leq x < 10$  b) at the end
- 14)  $\frac{8}{25}$  15) 108 16) 97.2
- 17a) 8 b) 72 c) 15 d) 12 e) -8 f) 89
- 18)  $-3, -\frac{3}{4}, 0, \frac{7}{8}, 0.9, 1\frac{4}{5}$
- 19)  $14 - 3 \times (7 - 4) = 5$
- 20a)  $1\frac{5}{12}$  b)  $1\frac{11}{30}$  c)  $6\frac{1}{6}$

