

Exercise 1: Solving Linear Equations

Solve the following linear equations:

1. a) $3x = 2x - 4$

c) $2y - 5 = 3y$

e) $3y - 8 = 2y$

2. a) $3x - 9 = 4$

c) $6x - 15 = 3x + 3$

e) $8y - 31 = 13 - 3y$

3. a) $7m - 1 = 5m + 1$

c) $12 - 2k = 16 + 2k$

e) $8 - 3x = 18 - 8x$

4. a) $\frac{x}{2} = 3$

c) $\frac{x}{4} = 1$

e) $7 = \frac{x}{5}$

5. a) $\frac{x}{3} - 1 = 4$

c) $\frac{2}{3}x = 5$

e) $\frac{1}{5}x = \frac{1}{2}$

b) $5y = 3y + 10$

d) $p - 8 = 3p$

f) $7x + 11 = 5x$

b) $4 = 3x - 11$

d) $4y + 5 = 3y - 3$

f) $4m + 2 = 5m - 8$

b) $5p - 3 = 3 + 3p$

d) $6x + 9 = 3x - 54$

f) $2 - y = y - 4$

b) $\frac{1}{2}y = 7$

d) $\frac{1}{4}m = 3$

f) $4 = \frac{1}{5}p$

b) $\frac{x}{5} + 2 = 1$

d) $\frac{3}{4}x = 6$

f) $\frac{2x}{5} = 4$

6. a) $\frac{x+1}{2} = 3$

b) $4 = \frac{x-2}{3}$

c) $\frac{x-10}{3} = 4$

d) $8 = \frac{5x-1}{3}$

e) $\frac{2(x-5)}{3} = 2$

f) $\frac{3(x-2)}{4} = 4x-8$

7. a) $6 = \frac{2(y-1)}{3}$

b) $2(x+1) = 3(x-5)$

c) $5(x-4) = 3(x+2)$

d) $\frac{3+y}{2} = \frac{y+1}{4}$

e) $\frac{7-2x}{3} = \frac{9x-1}{7}$

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

Exercise 2: Constructing Linear Equations

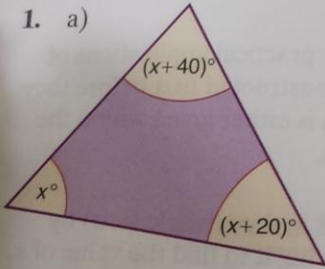
Things to remember:

1. The sum of the angles of a triangle is 180°
2. The sum of the angles of a quadrilateral is 360°
3. Two angles and two sides of an isosceles triangle are equal.
4. Vertically opposite angles are equal.

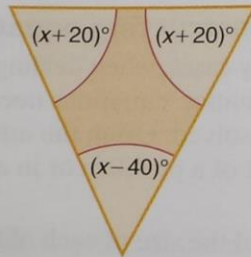
In questions 1–3:

- i) construct an equation in terms of x ,
- ii) solve the equation,
- iii) calculate the value of each of the angles,
- iv) check your answers.

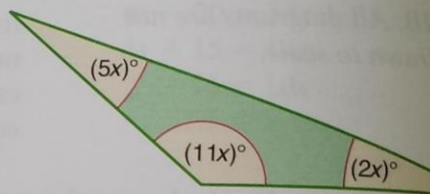
1. a)



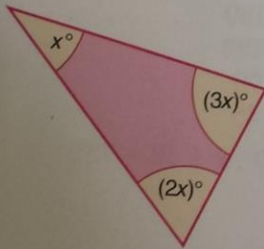
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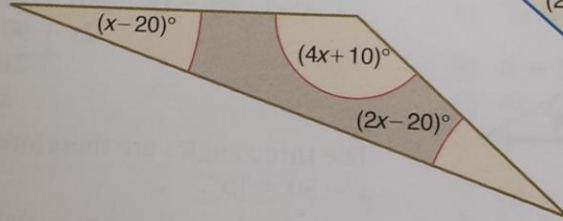
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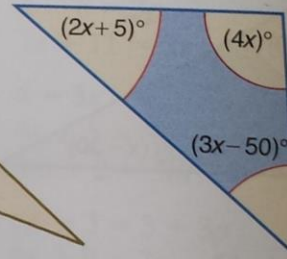
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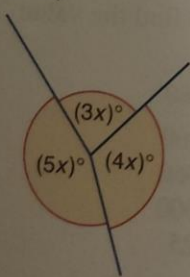
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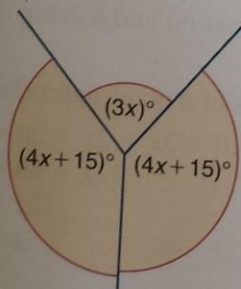
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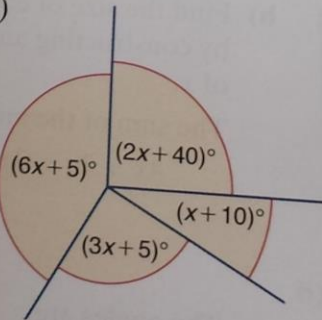
2. a)



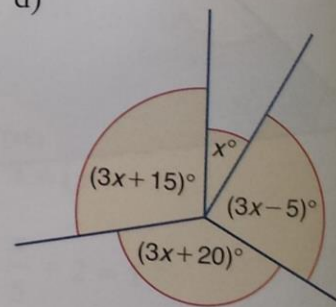
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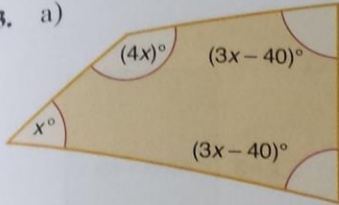
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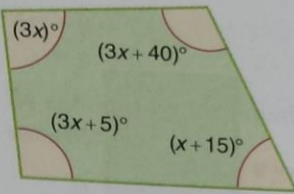
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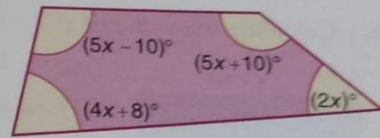
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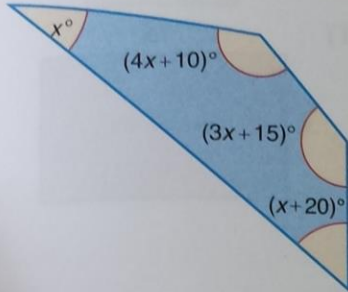
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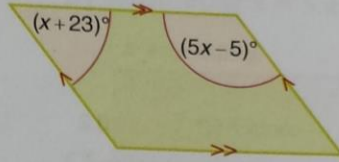
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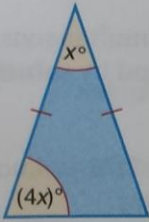


e)

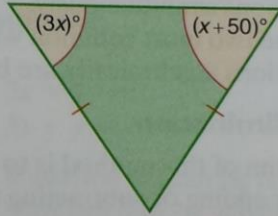


4. By constructing an equation and solving it, find the value of x in each of these isosceles triangles:

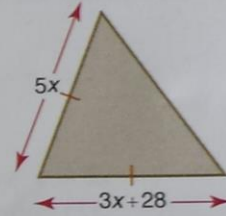
a)



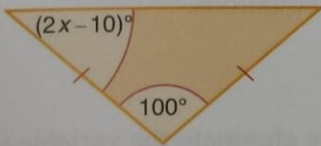
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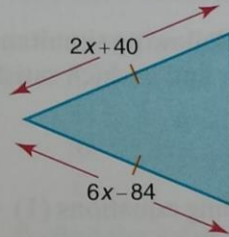
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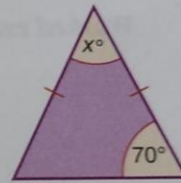
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e)



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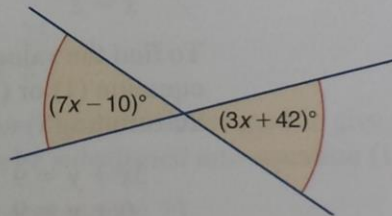


5. Using angle properties, calculate the value of x in each of these questions:

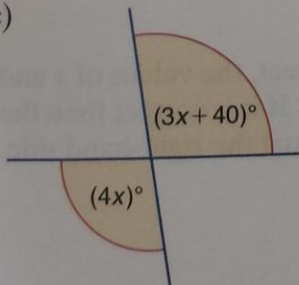
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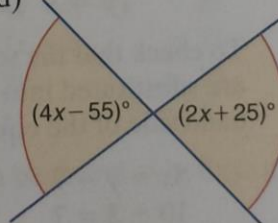
b)



c)



d)



6. Calculate the value of x :

