Revision

A Evaluating & Simplifying

1. If $a = 4$, $b = -3$ evaluate.

a) $b(a - 1)^5 =$ .....

b) $\sqrt{a^2 + b^2} =$ .....

2. Simplify (if possible).

a) $(3x)^2 \times 2xy =$ .....

b) $4xy - 2xy + yx =$ .....

c) $\sqrt{25a^{16}} =$ .....

d) $\frac{2a^2b}{6ab^2} =$ .....

e) $a^3 + 2a \times a^2 =$ .....

3. Expand and simplify.

a) $4y(y - 2) =$ .....

b) $3a + 4(a + 1) =$ .....

c) $6 - 2(y - 1) =$ .....

d) $5(x - 4) - x(x + 2) =$ .....

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4. Which of these does not simplify to $4a^2$?

A $(2a)^2$ B $3a \times 1a$

C $\sqrt{16a^4}$ D $a^2 + 3a^2$

B Solving & Rearranging

1. Solve the equations.

a) $5x - 1.5 = 6.7$

b) $2a - 4 = a + 6$

c) $\frac{t + 4}{2} = 0.5$

d) $7p - 4 + p = 8$

e) $4(r + 3) = 2 - r$

f) $\frac{x}{2} + 3x = 5\frac{1}{4}$

2. Make y the subject of the formula.

a) $2x + 3y = 6$

b) $2y^2 = 6a$

3. Solve these inequations.

a) $2x + 1 \geq 5$

b) $4 - 3x > x$

C Exercise

1. Tabby and her Mum joined the gym to get fit and lose weight. The heart rate (R) at which the human body starts to burn fat is related to the person's age (a) as follows : $R = 0.6(220 - a)$.

a) Tabby is 15. Calculate the heart rate at which Tabby will start to burn fat. .....

b) Tabby's Mum's heart rate has to be 102 before she starts to burn fat. Form an equation and solve it to find her age. .....

c) Make age (a) the subject of the formula $R = 0.6(220 - a)$ .....

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2. Rewi and Wetini collected Tuatua on the beach. Rewi collected 4 times as many as Wetini.

a) If t is the amount of Tuatua collected by Wetini, then Rewi collected ..... Tuatua.

b) Rewi gives Wetini 24 Tuatua and now they have equal amounts. Make up an equation and solve it to find how many Tuatua Wetini collected. .....

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Revision

A Brackets Galore!

1. Expand and simplify.

a) $(x - 4)(x + 3) =$

b) $(a + 3)(a - 3) =$

c) $(2p - 3)(p - 1) =$

d) $(2x + 5)^2 =$

2. Factorise.

a) $y^2 + 12y + 11 =$ .....

b) $a^2 - 36 =$ .....

c) $4x^2 - 6x =$ .....

d) $p^2 - 3p - 18 =$ .....

e) $3r^2 + 13r + 4 =$ .....

3. Factorise and solve.

a) $a^2 - 9a + 20 = 0$

b) $p^2 - p = 0$

c) $x^2 + 6x - 16 = 0$

d) $y^2 - 64 = 0$

B Frightening Fractions

1. Factorise and simplify.

a) $\frac{a^2 + 4a - 21}{a - 3} =$ .....

b) $\frac{x - 1}{x^2 - 2x + 1} =$ .....

2. Simplify.

a) $\frac{2a}{5} - \frac{a}{10} =$ .....

b) $\frac{k}{4} \times \frac{3k}{4} =$ .....

c) $\frac{2r}{3} \div \frac{r}{6} =$ .....

d) $\frac{m^2}{8n} \times \frac{6n^3}{m} =$ .....

3. Solve.

a) $\frac{2x - 5}{x + 4} = 0$

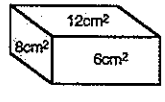
b) $\frac{3x + 1}{x + 2} = 1$

c) $\frac{x}{2} + x = 9$

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

C Dimensions

1.



a) Find the dimensions of this box.

length = ... width = ... height = ...

b) Calculate its volume. Volume = ...

2a) Find possible expressions for the dimensions of this box.

length = ... width = ... height = ...

b) Write a simplified expression for the surface area of the box.

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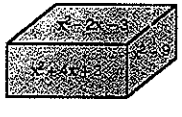

c) If the area of the top equals $32cm^2$, find possible values of x. (Hint : solve $x^2 - 2x - 3 = 32$)

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