N5 SPTA Block 1 Revision Questions

Show all working – <u>NO</u> calculator allowed.

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1. Expand and simplify where appropriate:

    a) $g(6g - h)$ **(b)** $d(4d - e)$ **(c)** $m(3m - n)$ **(d)** $-2x(4y - 5x)$

    e) $(p + 5)(p + 8)$ **(f)** $(d + 3)(d - 7)$ **(g)** $(g + 4)(g + 9)$ **(h)** $(2x + 5)(3x - 2)$

    i) $(p + 2)(p^2 + 8p - 6)$ **(j)** $(3x - 1)(2x^2 - 4x + 3)$

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2. Factorise fully:

    a) $k^2 + 7k$ **(b)** $h^3 - 11h$ **(c)** $3y^2 + 6y$

    d) $x^2 - 81$ **(e)** $q^2 - 144$ **(f)** $t^2 - 49$

    g) $z^2 + 10z + 21$ **(h)** $a^2 - 12a + 32$ **(i)** $x^2 + 7x + 12$

    j) $5x^2 - 45$ **(k)** $3x^2 + 9x - 30$ **(l)** $6x^2 + 5x - 4$

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3. Express the following in the form $(x + p)^2 + q$:

    a) $x^2 - 8x + 1$ **(b)** $x^2 + 7x - 9$ **(c)** $x^2 + 6x + 7$ **(d)** $x^2 - 5x - 7$

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4. Write the following in their simplest forms:

    a) $\dfrac{(3x - 1)(x + 3)}{(x + 3)^2} \ (x \neq -3)$ **(b)** $\dfrac{(2x + 5)(x + 7)}{(2x + 5)^2} \ (x \neq -2 \cdot 5)$

    c) $\dfrac{(4x - 3)(x + 4)}{(x + 4)^2} \ (x \neq -4)$ **(d)** $\dfrac{4x^2 - 25}{2x^2 - 15x + 25}$

5. Write each of the following as a single fraction:

a) $\dfrac{5}{c}+\dfrac{7}{d}$ $(c,d \neq 0)$

(b) $\dfrac{3}{a}-\dfrac{5}{b}$ $(a,b \neq 0)$

(c) $\dfrac{4}{m}-\dfrac{9}{n}$ $(m,n \neq 0)$

d) $\dfrac{4}{k}\div\dfrac{k}{l}$ $(h \neq 0)$

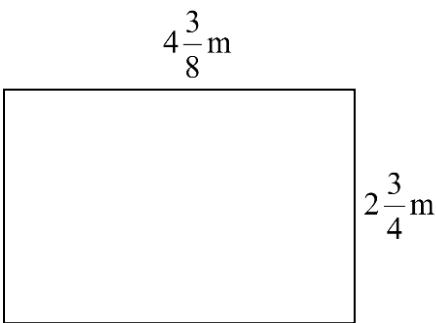**(e)** $\dfrac{k}{7}\div\dfrac{k}{h}$ $(h \neq 0)$

(f) $\dfrac{f}{5}\div\dfrac{e}{g}$ $(g \neq 0)$

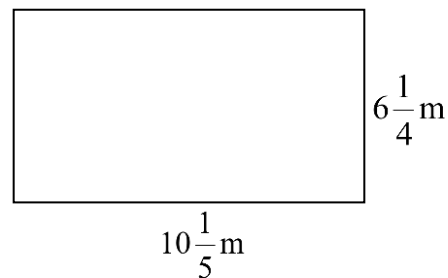**g)** $\dfrac{4}{(x+2)}+\dfrac{3}{x}$ $(x \neq 0,-2)$

(h) $\dfrac{5}{(x-3)}-\dfrac{2}{(x+1)}$ $(x \neq 3,-1)$

6. Calculate the area of these shapes:

a)

$4\frac{3}{8}$ m

$2\frac{3}{4}$ m

(b)

$6\frac{1}{4}$ m

$10\frac{1}{5}$ m

c)

$2\frac{3}{7}$ m
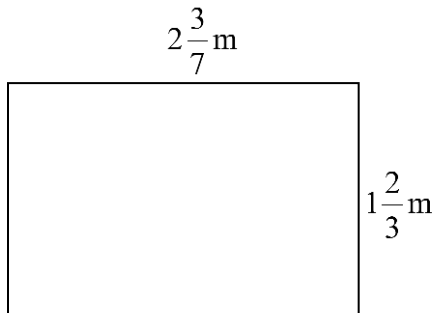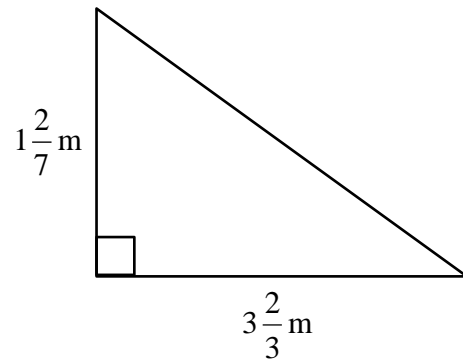
$1\frac{2}{3}$ m

(d)

$1\frac{2}{7}$ m

$3\frac{2}{3}$ m

7. a) Miss Wolfe bought a new red cape for £250.
After wearing it for a year its value depreciated by 8%.
Ten years later when she sold her cape it was classed as vintage
and so had appreciated by 13%. How much did Miss Wolfe sell her cape for?

b) Miss Wolfe bought another red cape to replace the one she sold earlier.
The cape had 35% off in the sale and cost Miss Wolfe £169 in the sale.
How much would it have cost if she had bought it full price?

End of Non-Calculator Section

8. **a)** House prices are expected to rise by 3·6% each year in West Dunbartonshire.
What will the average house price be in 3 years if it is £121,000 today?

b) Chocolate fountains have become very popular at parties.
At one party 23% of the remaining chocolate was used every 20 minutes.
If 2kg of melted chocolate was added to the fountain at the start of the night,
how much would be left after 1 hour?

c) Mr O'Shea bought a new car for £14 000.
Its value depreciated by 18% each year.
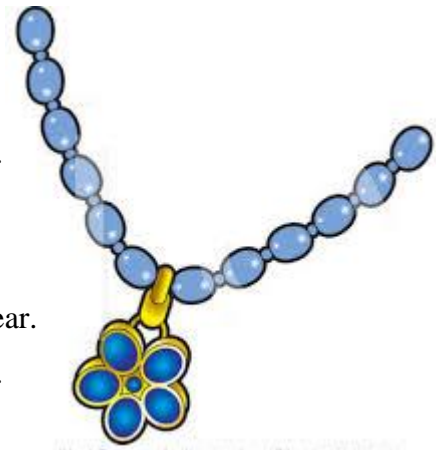Find the value of the car after 5 years.

9. **a)** Mr Campbell bought his old car three years ago.
Since then it has decreased in value by 45% and is now worth £6875.
How much did he pay for the car?

b) Mrs Mackie bought an antique necklace last year.
It has appreciated in value by 35% and is now worth £3510.
Calculate how much Mrs Mackie paid for the necklace.

c) Mr Speir invested some money in a Building Society last year.
It has appreciated in value by 15% and is now worth £2760.
Calculate how much Mr Speir invested.

———— **End of Calculator Section** ————