

N4 Maths Expressions & Formulae Practice

First Section of NAB

1) Multiply out the brackets in the following expressions:

a) $4(3x+4)$ b) $6(2p+3)$ c) $3(7d+5)$ d) $8(7+4y)$ e) $5(9-8w)$ f) $9(5j-7)$

2) If $a = 4$, $b = 5$ and $c = 6$, find the value of the following expressions:

a) $4a+b$ b) $5b-c$ c) $6a+2c$ d) $7c-3b$ e) $2ab+c$ f) $7a-2b+3c$

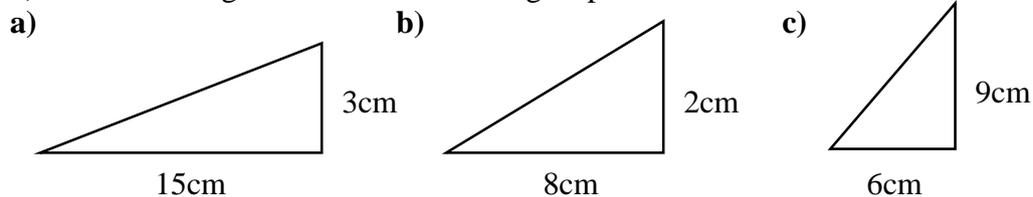
3) Simplify the following expression:

a) $3x+4x+2y+5y$ b) $4v+2w-v+5w$ c) $9c+2d-5d-4c$
d) $8p+4s-5p-9s$ e) $7g-5h-2g+3h$ f) $4z-7z-5k-11k$

4) Expand the brackets and simplify the following expressions:

a) $4(2j+2)+3j$ b) $7(3e+6)+8e$ c) $5(4y-6)+2y$
d) $6(5+2q)-7$ e) $8(7-5p)-9j$ f) $9(4c-8)-6c$

5) Calculate the gradient of the following slopes:



6) To convert a length from inches (I) to centimetres (c) you use the formula

$$c = 2.54I$$

Calculate how many centimetres there are in 6 inches.

7) To convert a length from yards (Y) to metres (m) you use the formula $m = 0.9144Y$

Calculate how many metres there are in 240 yards.

8) The cost of hiring a speed boat is given by the formula $C = 35 + 3H$ where C is the cost in pounds and H is the number of hours you hire the boat.

Calculate the cost of hiring a boat for 4 hours.

9) If $x = 6$ and $y = 14$, calculate the value of z using the formula $z = 3y - 2x$

10) Copy and complete the table by extending the sequence and write down a formula for calculating B when you know the number A .

| | | | | | | | |
|-----|---|---|----|----|---|---|---|
| A | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| B | 4 | 7 | 10 | 13 | | | |

11) Copy and complete the table by extending the sequence and write down a formula for calculating H when you know the number G .

| | | | | | | | |
|-----|----|----|----|----|---|---|---|
| G | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| H | 11 | 16 | 21 | 26 | | | |

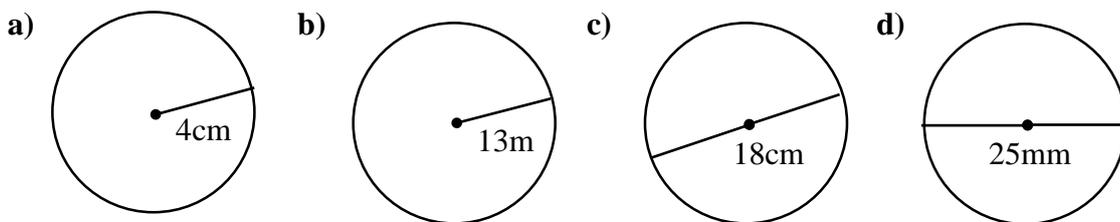
12) Copy and complete the table by extending the sequence and write down a formula for calculating Z when you know the number Y .

| | | | | | | | |
|-----|---|----|----|----|---|---|---|
| Y | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Z | 6 | 14 | 22 | 30 | | | |

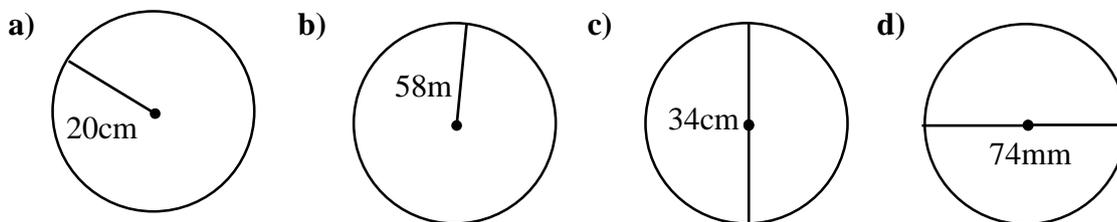
13) Factorise the following expressions:

- a) $6x + 9$ b) $12j + 10$ c) $3a - 12$ d) $4s + 14$ e) $8f + 12$ f) $10z - 5$
 g) $9q + 3$ h) $16y - 20$ i) $15l + 21$ j) $18w - 24$ k) $24p + 36$ l) $27d - 63$

14) Calculate the circumference of these circles:



15) Calculate the area of these circles:



16) Calculate the area of these shapes:

