

UNIT 16 Algebra: Linear Equations

Mental Tests

M 16.1 Standard Route *(no calculator)*

You will need the 'Codewheel and Function Machines' Sheet

1. Use the codewheel to code the word O N. (S R)
2. What is the output of machine A if the input is 5 ? (20)
3. What is the output of machine B if the input is 4 ? (30)
4. What is the output of machine C if the input is 14 ? (3)
5. What is the output of machine D if the input is 3 ? (12)
6. If the output of machine A is 24, what is the input? (6)
7. Solve the equation $x + 5 = 9$. (4)
8. Solve the equation $3x = 15$. (5)
9. If $a = 4$ and $b = 7$, what is $a + b$? (11)
10. If $x = 11$ and $y = 7$, what is $x - y$? (4)

M 16.2 Academic Route *(no calculator)*

You will need the 'Codewheel and Function Machines' Sheet

1. Use the codewheel to decode the word L I. (H E)
2. What is the output of machine B if the input is 7 ? (45)
3. What is the output of machine C if the input is 50 ? (12)
4. What is the output of machine D if the input is 6 ? (33)
5. If the output of machine A is 44, what is the input? (11)
6. If the output of machine B is 40, what is the input? (6)
7. Solve the equation $x + 11 = 19$. (8)
8. Solve the equation $4x = 64$ (16)
9. If $a = 6$ and $b = 3$, what is $2a - b$? (9)
10. If $x = 9$ and $y = 7$, what is $xy - 2$? (61)

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M 16.3 Express Route *(no calculator)*

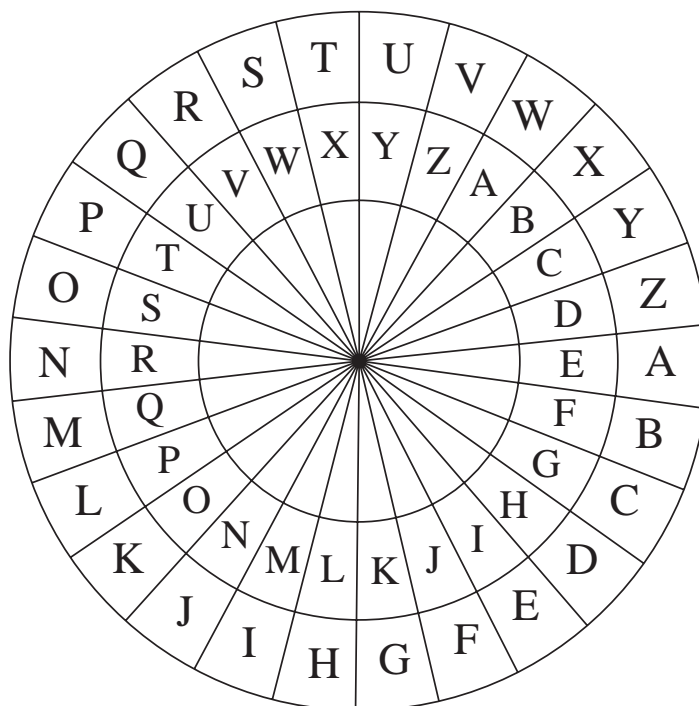
You will need the 'Codewheel and Function Machines' Sheet

1. Use the codewheel to decode the word X L I. (T H E)
2. What is the output of machine C if the input is 20 ? $(4\frac{1}{2})$
3. If the output of machine A is 30, what is the input ? $(7\frac{1}{2})$
4. If the output of machine B is 45, what is the input ? (7)
5. If the output of machine C is $-1\frac{1}{2}$, what is the input ? (-4)
6. If the output of machine D is 54, what is the input? (9)
7. Solve the equation $17 - 2x = 11$. (3)
8. Solve the equation $\frac{x}{6} = 7$ (42)
9. If $a = 6$ and $b = -7$, what is $2a + b$? (5)
10. If $x = 4$ and $y = -2$, what is $5xy$? (-40)

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Codewheel and Function Machines



A : $\longrightarrow \boxed{\times 4} \longrightarrow$

B : $\longrightarrow \boxed{+ 2} \longrightarrow \boxed{\times 5} \longrightarrow$

C : $\longrightarrow \boxed{- 2} \longrightarrow \boxed{\div 4} \longrightarrow$

D : $\longrightarrow \boxed{\times 7} \longrightarrow \boxed{- 9} \longrightarrow$