

Revision & Practice Worksheet 9

A Algebra: Multiplying algebraic terms

- | | | |
|---------------------|-----------------------------|------------------------------|
| 1 $4a \times 2$ | 2 $-3a \times 4$ | 3 $6 \times -3b$ |
| 4 $3a \times -2c$ | 5 $2 \times 6a \times 5$ | 6 $2a \times 7b$ |
| 7 $12ab \times 3c$ | 8 $15ac \times 4$ | 9 $-2a \times 9bc$ |
| 10 $-3ad \times 4e$ | 11 $16a \times -4c$ | 12 $6a \times -2b \times c$ |
| 13 $2ab \times -3c$ | 14 $5a \times 2c \times 3b$ | 15 $-9a \times 6 \times 3bc$ |

B Algebra: Evaluating formulas

The speed of an object, s measured in km/h, depends on the distance travelled d (km) in a certain time t (h), according to the formula: $s = \frac{d}{t}$

Find the speed of an object which travels,

- | | |
|--------------------------------|----------------------------------|
| 1 10km in 3 hours | 2 5 km in 2 hours |
| 3 1600 m in 2 hours | 4 2400 m in $3\frac{1}{2}$ hours |
| 5 6 km in $2\frac{1}{4}$ hours | 6 800 m in 20 minutes |
| 7 1800 m in 40 minutes | 8 1900 m in 15 minutes |
| 9 7 km in 45 minutes | 10 200 km in 1 hour 15 minutes |

C Algebra: Factorising algebraic expressions

Factorise the following:

- | | | |
|---------------------|-------------------|--------------------|
| 1 $2a - 4$ | 2 $9b + 3$ | 3 $12bc - 6$ |
| 4 $6ab + 3b$ | 5 $ab + 2bc$ | 6 $3ac - 4c$ |
| 7 $15c + 5$ | 8 $4d - 8e$ | 9 $b^2 - c^2$ |
| 10 $e^2 - f^2$ | 11 $4e^2 - 9$ | 12 $100a^2 - 9$ |
| 13 $16a^2 - b^2c^4$ | 14 $9a^6 - 1$ | 15 $a^2 + 9a + 20$ |
| 16 $a^2 + 3a + 2$ | 17 $a^2 - 5a + 4$ | 18 $a^2 - 2a + 1$ |
| 19 $a^2 - a - 6$ | 20 $a^2 + a - 6$ | |

D Indices: Zero Index

Evaluate:

- | | | | |
|------------------------------|-------------------------------|---------------------------|-----------------------|
| 1 a^0 | 2 ab^0 | 3 $(5a)^0$ | 4 $(6a^2)^0$ |
| 5 $2^0 + 1$ | 6 $3a^0 - 1$ | 7 $9^0 + 2$ | 8 $5(a+1)^0$ |
| 9 $7a^0 - 4$ | 10 $\frac{2}{a^0} + 6$ | 11 $\frac{3a^2}{a^2}$ | 12 $\frac{5b}{b} + 6$ |
| 13 $\frac{6a^2b^4}{2a^2b^4}$ | 14 $\frac{15a^2c^2}{3a^2c^2}$ | 15 $\frac{6a^2b}{-3a^2b}$ | |

E Indices: Prime factors

Evaluate:

- | | | |
|------------------------------|-------------------------------|------------------------------|
| 1 $2^4 \times 3^2$ | 2 $6^3 \times 2^4$ | 3 $2^4 \times 3^8$ |
| 4 $3^2 \times 2^3 \times 5$ | 5 $6^2 \times 5^2 \times 3$ | 6 $9^2 \times 3 \times 5^4$ |
| 7 $11^2 \times 3^3 \times 7$ | 8 $2^5 \times 3^2 \times 5^2$ | 9 $11^2 \times 3 \times 5^2$ |
| 10 $3^4 \times 2^6 \times 5$ | 11 $2^5 \times 3^2 \times 11$ | 12 $7^2 \times 3^2 \times 5$ |
| 13 $7^3 \times 2 \times 3^2$ | 14 $5^3 \times 2 \times 3^2$ | 15 $3^4 \times 2^2 \times 7$ |

Worksheet 9

A

1 $8a$	2 $-12a$	3 $-18b$
4 $-6ac$	5 $60a$	6 $14ab$
7 $36abc$	8 $60ac$	9 $-18abc$
10 $-12ade$	11 $-64ac$	12 $-12abc$
13 $-6abc$	14 $30abc$	15 $-162abc$

B

1 $3\frac{1}{3}$ km/h	2 $2\frac{1}{2}$ km/h	3 0.8 km/h
4 $\frac{24}{35}$ km/h	5 $2\frac{2}{3}$ km/h	6 2.4 km/h
7 2.7 km/h	8 7.6 km/h	9 $9\frac{1}{3}$ km/h

C

10 160 km/h	
1 $2(a-2)$	2 $3(3b+1)$
3 $6(2bc-1)$	4 $3b(2a+1)$
5 $b(a+2c)$	6 $c(3a-4)$
7 $5(3c+1)$	8 $4(d-2e)$
9 $(b-c)(b+c)$	10 $(e-f)(e+f)$
11 $(2e-3)(2e+3)$	12 $(10a-3)(10a+3)$
13 $(4a-bc^2)(4a+bc^2)$	14 $(3a^3-1)(3a^3+1)$
15 $(a+4)(a+5)$	16 $(a+2)(a+1)$
17 $(a-4)(a-1)$	18 $(a-1)(a-1)$
19 $(a-3)(a+2)$	20 $(a+3)(a-2)$

D

1 1	2 a	3 1	4 1	5 2
6 2	7 3	8 5	9 3	10 8
11 3	12 11	13 3	14 5	15 -2

E

1 144	2 3456	3 104 976
4 360	5 2700	6 151 875
7 22 869	8 7200	9 9075
10 25 920	11 3168	12 2205
13 6174	14 2250	15 2268