

IGCSE: Number Practice

Dauntsey's School

Answer on file paper

1: Express as a product of prime factors:

a) 70

b) 72

c) 12

2: Find the HCF of:

a) 24 and 80

b) 196 and 252

c) 132 and 308

3: Find the LCM of:

a) 8 and 20

b) 8 and 10

c) 50 and 60

4: Work out the following:

a) $(-9) \times (-7) - (-7) \times 6$

b) $8 + 6 \times (-1) + 3$

c) $(-1) - 8 \times (-5)$

5: Simplify the following surds:

a) $\sqrt{75} + \sqrt{12}$

b) $\sqrt{8} + \sqrt{50}$

c) $\sqrt{80} + \sqrt{45}$

d) $\sqrt{45} + \sqrt{80}$

e) $\sqrt{8} + \sqrt{2}$

f) $\sqrt{75} + \sqrt{48}$

6: Simplify the following surds:

a) $\sqrt{2} \times \sqrt{18}$

b) $\sqrt{12} \times \sqrt{3}$

c) $\sqrt{45} \times \sqrt{45}$

d) $\sqrt{12} \times \sqrt{48}$

e) $\sqrt{18} \times \sqrt{2}$

f) $\sqrt{5} \times \sqrt{45}$

7: Work out the following:

a) 3^2

b) 2^{-1}

c) 14^2

d) 2^{-4}

e) 6^2

f) 3^{-2}

8: Work out the following:

a) $49^{1/2}$

b) $1000^{-1/3}$

c) $400^{1/2}$

d) $169^{-1/2}$

e) $25^{-1/2}$

f) $125^{1/3}$

9: Work out the following:

a) $8^{-2/3}$

b) $64^{5/6}$

c) $64^{2/3}$

d) $25^{-3/2}$

e) $32^{-3/5}$

f) $32^{4/5}$

10: Work out the following:

a) $(\frac{5}{4})^{-3}$

b) $(\frac{5}{8})^3$

c) $(\frac{8}{3})^2$

d) $(\frac{9}{7})^{-3}$

e) $(\frac{4}{7})^{-2}$

f) $(\frac{3}{10})^3$

11: Work out the following:

a) $(\frac{4}{25})^{-1/2}$

b) $(\frac{49}{36})^{1/2}$

c) $(\frac{8}{729})^{-1/3}$

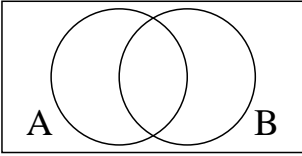
d) $(\frac{512}{343})^{1/3}$

e) $(\frac{125}{343})^{-1/3}$

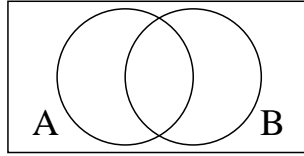
f) $(\frac{81}{16})^{1/2}$

12: Shade the following regions:

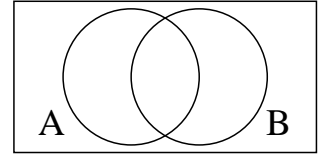
a) $A' \cap B$



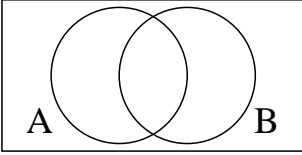
b) $A \cap B$



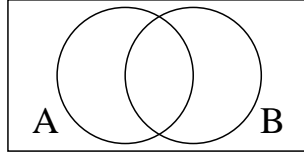
c) $A \cap B'$



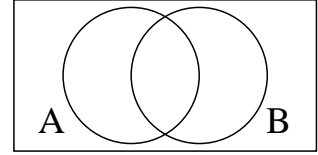
d) $A' \cap B'$



e) $(A \cap B)'$

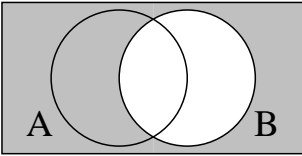


f) $(A \cup B)'$

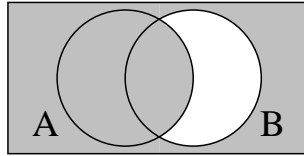


13: Identify the following regions:

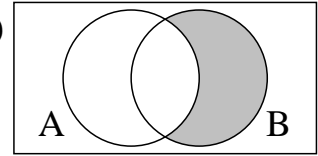
a)



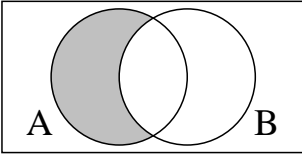
b)



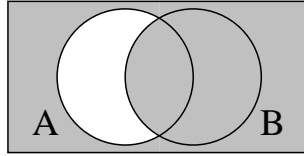
c)



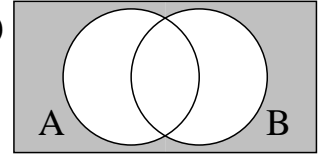
d)



e)



f)



14: If $A = \{a, c, e, f\}$, $B = \{a, e, f\}$ and $E = \{a, b, \dots, f\}$, find:

a) $A \cup B'$

b) $A \cap B'$

c) $A \cap B$

d) $A \cup B$

e) $A' \cap B$

f) $A' \cup B$

g) $A \cup B'$

h) $A' \cap B'$

15: Convert:

a) 25% to a fraction

b) 60% to a fraction

c) 30% to a fraction

16: Convert:

a) $\frac{4}{5}$ to a percentage

b) $\frac{3}{8}$ to a percentage

c) $\frac{1}{2}$ to a percentage

17: Write as a normal number:

a) 5.95×10^{-3}

b) 6×10^{-4}

c) 6.316×10^{-2}

18: Write the following in standard form:

a) 0.000093

b) 2210000

c) 0.8

19: Calculate the following, giving your answer in standard form:

a) $4 \times 10^{10} \times 7 \times 10^{-3}$

b) $7.0 \times 10^{-4} + 3.2 \times 10^{-2}$

c) $7.2 \times 10^{-2} \div 8 \times 10^0$

Answers: IGCSE: Number Practice

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1: a) $2 \times 5 \times 7$

b) $2^3 \times 3^2$

c) $2^2 \times 3$

2: a) 8

b) 28

c) 44

3: a) 40

b) 40

c) 300

4: a) 105

b) 5

c) 39

5: a) $7\sqrt{3}$

b) $7\sqrt{2}$

c) $7\sqrt{5}$

d) $7\sqrt{5}$

e) $3\sqrt{2}$

f) $9\sqrt{3}$

6: a) 6

b) 6

c) 45

d) 24

e) 6

f) 15

7: a) 9

b) $\frac{1}{2}$

c) 196

d) $\frac{1}{16}$

e) 36

f) $\frac{1}{9}$

8: a) 7

b) $\frac{1}{10}$

c) 20

d) $\frac{1}{13}$

e) $\frac{1}{5}$

f) 5

9: a) $\frac{1}{4}$

b) 32

c) 16

d) $\frac{1}{125}$

e) $\frac{1}{8}$

f) 16

10: a) $\frac{64}{125}$

b) $\frac{125}{512}$

c) $\frac{64}{9}$

d) $\frac{343}{729}$

e) $\frac{49}{16}$

f) $\frac{27}{1000}$

11: a) $\frac{5}{2}$

b) $\frac{7}{6}$

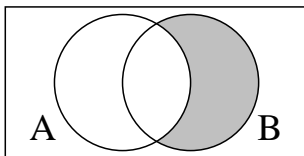
c) $\frac{9}{2}$

d) $\frac{8}{7}$

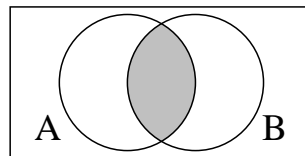
e) $\frac{7}{5}$

f) $\frac{9}{4}$

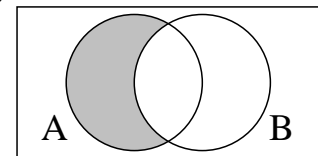
12: a) $A \cap B$



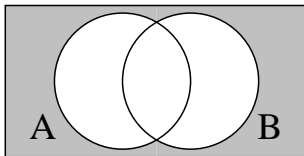
b) $A \cap B$



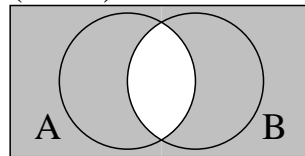
c) $A \cap B'$



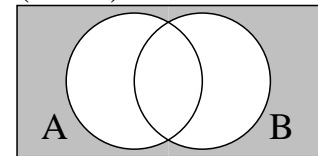
d) $A' \cap B'$



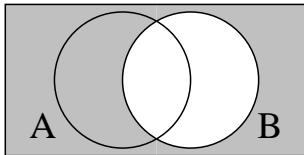
e) $(A \cap B)'$



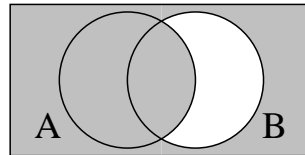
f) $(A \cup B)'$



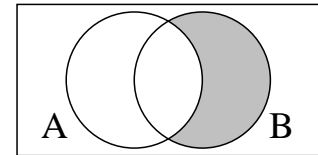
13: a) B'



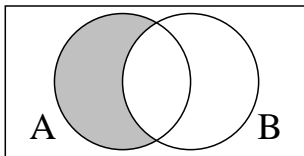
b) $A \cup B'$



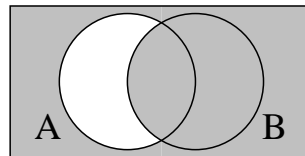
c) $A' \cap B$



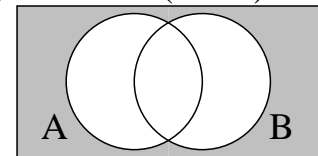
d) $A \cap B'$



e) $A' \cup B$



f) $A' \cap B'$ or $(A \cup B)'$



14: a) {a, b, c, d, e, f}

b) {c}

c) {a, e, f}

d) {a, c, e, f}

e) \emptyset

f) {a, b, d, e, f}

g) {a, b, c, d, e, f}

h) {b, d}

15: a) $\frac{1}{4}$

b) $\frac{3}{5}$

c) $\frac{3}{10}$

16: a) 80%

b) 37.5%

c) 50%

17: a) 0.00595

b) 0.0006

c) 0.06316

18: a) 9.3×10^{-5}

b) 2.21×10^6

c) 8×10^{-1}

19: a) 2.8×10^8

b) 3.27×10^{-2}

c) 9×10^{-3}