

Sutton Maths Class

Year 4 - Week 22

Starter/Homework:

(Starred questions are optional)

1 Simplify:

a) $\frac{12}{70} = \frac{6}{35}$ b) $\frac{400}{350} = \frac{40}{35} = \frac{8}{7}$ or $1\frac{1}{7}$

2 Complete the following:

$$\frac{9}{10} = \frac{9+45}{50} = \frac{54}{50} = \frac{27}{25}$$

3 Convert the following to mixed numbers and simplify where possible:

a) $\frac{12}{5} = 2\frac{2}{5}$ b) $\frac{35}{2} = 17\frac{1}{2}$

4 Find $\frac{2}{3}$ of 360kg.

$\frac{2}{3} \times 360 = 240$ kg

a) Find 30% of £60.

$10\% = £6$
 $30\% = £18$

b)* Find 18% of £900.

$20\% = £180$
 $- 2\% = £18$
 $18\% = £162$

6** Increase £40 by 12%.

$12\% = £4.80$
 $£40 + £4.80 = £44.80$

7 Write $8\frac{78}{1000}$ as a decimal.

$8 + \frac{78}{1000} = 8.078$

8** Round 7.3257 to the nearest hundredth.

7.33

9 Solve $4x - 2 = 62$ $x =$ 16

$4x = 64$

10*** Solve $\frac{1}{3}x = 10$ $x =$ 30

11 I think of a number, multiply by 6, add 7 and the answer is 25. What was the number?

$6x + 7 = 25$
 $6x = 18$
 $x = 3$

12 a $2 - 22 = -20$
b $-4 - 26 = -30$
c $8 - 19 = -11$
d* $-40 - 21 = -61$
e $-9 - 4 = -13$
f* $0 - 32 = -32$
g* $1 - 20 = -19$

13 a $-5 \times -9 = 45$
b* $-20 \div 2 = -10$
c $(-7)^2 = 49$
d** $10 + 2 \times -30 = -50$
(don't forget BIDMAS)
e*** $(-1)^2 \div (-8)^2 = 1 \div 64 = \frac{1}{64}$
(hint: leave as a fraction)

14* $8 + 3^3 - (5 - 2)^2 =$
 $8 + 27 - 9 = 26$

15** If $a = \frac{1}{3}$, $b = 10$ and $c = 9$

find:

a) $ac^{\frac{1}{3}} \times 9 = 3$ b) $ac + b = 3 + 10 = 13$

c)** $ac - b^2 = 3 - 100 = -97$

Simplify:

a) $20 : 18 = 10 : 9$ b) $21 : 49 = 3 : 7$

Split £500 in the ratio 1:4.

$£100 : £400$

18 List the factors of 40.

1, 2, 4, 5, 8, 10, 20, 40

19 Draw a factor tree for 30.

$30 = 2 \times 15 = 2 \times 3 \times 5$

20 a $\frac{36}{816} + \frac{1}{16} = \frac{7}{16}$ b $\frac{2}{5} \times \frac{56}{65} = \frac{12}{25}$

21 Complete the following:

a $0.02 \text{ kg} = \square \text{ g}$ 20

b $9300 \text{ ml} = \square \text{ litres}$ 9.3

c $1200 \text{ m} = \square \text{ km}$ 1.2

d $0.9 \text{ cm} = \square \text{ mm}$ 9

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e $0.492 \text{ m} = \square \text{ mm}$ 492

f $100 \text{ g} = \square \text{ kg}$ 0.1

g $925 \text{ ml} = \square \text{ litres}$ 0.925

h $37 \text{ mm} + 0.1 \text{ cm} = \underline{38}$ mm

i $8 \text{ kg } 200 \text{ g} = \underline{8.2}$ kg

22* What fraction of 6 litres is 30ml?

$$\frac{30}{6000} = \frac{3}{600} = \frac{1}{200}$$

23** Decrease 0.9 litres by 50ml. Give your answer in litres.

$$900 \text{ ml} - 50 = 850 \text{ ml} = 0.85 \text{ Litres}$$

24 $200 \text{ ml} \times 4 = \underline{0.8}$ litres

$$800 \text{ ml}$$

25 Complete the following sequences:

a 1, 1, 2, 3, 5, 8, 13, 21

b 2, 5, 8, 11, 14, 17

c** 1, 4, 9, 16, 25, 36, 49
What special numbers are these? *square numbers*

26 Find the first two terms of the sequence with nth term $5n - 9$.

$$5 \times 1 - 9 = -4$$

$$5 \times 2 - 9 = 1$$

27*** Find the 10th term of the sequence with nth term $6 - 2n$.

$$6 - 2 \times 10 = 6 - 20 = -14$$

28**** Find the 5th term of the sequences with nth term $400 - 2n^2$. *first (BIDMAS)*

$$400 - 2 \times 25 = 350$$

29**** Solve $60 = 100 - 2x$.
Hint: you can use trial and error if this is tricky.

$$2x = 40$$

$$\underline{x = 20}$$

30 Calculate:

$$\begin{array}{r} 225 \\ \times 9 \\ \hline 2025 \end{array}$$

a* $15^2 \times 3^2$ 2025 b*** $9^2 - 5^2$

$$81 - 25 = 56$$

c $\sqrt{144}$ 12

d*** $6^2 - 2^3 + \sqrt{64}$

$$36 - 8 + 8 = 36$$

31 What is the 3rd cube number? $3^3 = 27$

32 What is the 5th triangular number?

$$1 + 2 + 3 + 4 + 5 = 15$$

33* What is the 6th triangular number take away the 4th square number? $21 - 16 = 5$

34 Convert the following:

a 0.73 73% (percentage)

b 28% 0.28 (decimal)

c 60% 0.6 (decimal)

d 0.2 20% (percentage)

e 90% $\frac{9}{10}$ (fraction)

f 15% $\frac{15}{100} = \frac{3}{20}$ (fraction)

g 0.62 $\frac{62}{100} = \frac{31}{50}$ (fraction)

h $\frac{1}{1000} = 0.001$ (decimal)

i* $\frac{1}{10}$ 10% (percentage)

j* $\frac{1}{20} \div \frac{1}{2} = \frac{1}{10}$ (decimal)
 $\frac{2}{20} = \frac{1}{10} = 0.1$

35 Calculate:

a $2.2 + 5.31 = 7.51$

b $0.5 \times 0.4 = 0.2$

c $1.5 \div 0.5 = 3$

d $4 \div 0.5 = 8$

e** $(0.3)^2 = 0.09$
 0.3×0.3

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Questions:

4**** Match up the following sequences to their nth terms:

1 Write the first four terms of the following sequences:

- | | | | |
|------|-----------|-----|----------|
| a | $5n + 3$ | b | $2n + 6$ |
| c | $10n - 5$ | d* | $4n - 5$ |
| e* | $50 - 3n$ | f** | $8 - 3n$ |
| g*** | $-2n + 4$ | | |
- Handwritten notes in red:
- For a: 8, 13, 18, 23
 - For b: 8, 10, 12, 14
 - For c: 5, 15, 25, 35
 - For d*: -1, 3, 7, 11
 - For e*: 47, 44, 41, 38
 - For f**: 5, 2, -1, -4
 - For g***: 2, 0, -2, -4

- | | |
|---|----------------------|
| a | -1, 8, 23, 44 ... |
| b | 1, 4, 9, 16, 25 ... |
| c | 6, 8, 10, 12, 14 ... |
| d | 3, 8, 15, 24 ... |
| e | 0, 3, 8, 15, 24 ... |
| f | 5, 11, 17, 23 ... |

2 What is the **difference** for the following **linear sequences**? (ie which times tables is similar to the following sequences?):

- | | | |
|------|----------------------------|---------------|
| a | 6, 9, 12, 15 ... | $3n + 3$ |
| b | 10, 20, 30, 40, 50 ... | $10n$ |
| c | 4, 7, 10, 13 ... | $3n + 1$ |
| d | 12, 16, 20, 24 ... | $4n + 8$ |
| e | 8, 13, 18, 23, 28 ... | $5n + 3$ |
| f | 10, 17, 24, 31 ... | $7n + 3$ |
| g | 20, 24, 28, 32 ... | $4n + 16$ |
| h | 6, 16, 26, 36, 46 ... | $10n - 4$ |
| i | 3, 11, 19, 27 ... | $8n - 5$ |
| j** | 5, 3, 1, -1 ... | $-2n + 7$ |
| k** | 4, 4.5, 5, 5.5, 6, 6.5 ... | $0.5n + 3.5$ |
| l*** | 9, 8.5, 8, 7.5, 6, 6.5 ... | $-0.5n + 9.5$ |

Handwritten matches in red:

- $2n + 4$ (c)
- $6n - 1$ (f)
- $n^2 - 1$ (e)
- $2n + n^2$ (d)
- n^2 (b)
- $3n^2 - 4$ (a)

* Beyond 11+

3 For the sequences in question 2 find the:

- | | |
|---|------------|
| a | nth term |
| b | 10th term |
| c | 100th term |

Mean Work