Ordered strictly alphabetically

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p2 algebraGraph,
p2 expandLinear,
p3 expandQuadratic,
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p3 inequality,
p4 sequenceArithmetic,
p4 sequenceOther,
p5 simplifyPQ,
p5 simplifySD,
p6 solve,
p6 solvingSimultaneous,
p7 solvingReady,
p8 valueAlgebra,
p8 writeAlgebra,
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algebraGraph
9. draw e.g. $\mathrm{x}=3$ or $\mathrm{y}=2$ or $\mathrm{y}= \pm \mathrm{x}$ or $\mathrm{x}+\mathrm{y}=5$ \{no table of values\}
8. draw eg $y=3 x+2$ \{no table of values $\}$
7. scaffold to complete the table of values for e.g. $\mathrm{x}=3$ or $\mathrm{y}=2$ or $\mathrm{y}= \pm \mathrm{x}$ or $\mathrm{x}+\mathrm{y}=5$ scaffold is choice of two incomplete table of values
6. scaffold to work out y , when $\mathrm{x}=0$ and $\mathrm{x}=1$ for e.g. $\mathrm{y}=3 \mathrm{x}+2$ scaffold is an example of the cover up method
5. scaffold to complete table of values and draw e.g. $\mathrm{y}=3 \mathrm{x}+2$ scaffold is given $\mathrm{x}=0$ and $\mathrm{x}=1$ values in the table
4. scaffold to complete table of values and draw e.g. $\mathrm{x}=3$ or $\mathrm{y}=2$ or $\mathrm{x}+\mathrm{y}=5$ or $\mathrm{y}=$ x scaffold is easy scale, given half complete table and hints about which points are easier to plot first
3. scaffold to complete table of values and draw the line e.g. $y=3 x+2$ scaffold is easy scale, given half complete table and hints about which points are easier to plot first
2. scaffold to draw the line e.g. $\mathrm{y}=3 \mathrm{x}+2$ or $\mathrm{y}=16-2 \mathrm{x}$ or $\mathrm{x}+\mathrm{y}=12$ scaffold is easy scale, given 3 points plotted, and an almost complete table of values

1. scaffold to draw the line e.g. $\mathrm{y}=3 \mathrm{x}+2$ or $\mathrm{y}=16-2 \mathrm{x}$ or $\mathrm{x}+\mathrm{y}=12$ scaffold is easy scale, given 3 points plotted NO TABLE
expandLinear
2. expand and simplify e.g. $4(3-2 x)-(3 x-1)$
3. expand e.g. $-3(4 x-3 y)$ or $-(4 x-3 y)$
4. expand e.g. $3(4 x-3 y)$
5. expand and simplify e.g. $4(2 x-3)+(3 x-1)$
6. expand and simplify e.g. $4(2 x-3)+2(3 x-1)$
7. expand $4(3-2 x)$ \{order may surprise some learners\}
8. expand e.g. $4(2 x-3)$
9. expand e.g. $5(x+3)$ or $5(x-3)$
10. scaffold to expand e.g. $5(x+3)$ or $5(x-3)$ scaffold is claw and arrow to invisible ... sign
11. scaffold to expand e.g. $5(y-3)$ scaffold is claw and arrow to invisible $\times$ sign and hints $5 \times y=\ldots$ and $5 \times 3=\ldots$ and incomplete answer line $\ldots-\ldots$
12. scaffold to expand e.g. $5(y+3)$ scaffold is claw and arrow to invisible $\times$ sign and hints $5 \times y=\ldots$ and $5 \times 3=\ldots$ and incomplete answer line $\ldots+\ldots$
expandQuadratic
13. expand and simplify e.g. $(4 x-3 y)(2 x-y)$
14. expand and simplify e.g. $(2 x-3)(3 x-1)$
15. expand e.g. $4 x(2 x-3)$
16. expand e.g. $x(2 x-3)$
17. expand and simplify e.g. $(x+4)(x-4)$ \{always difference of two squares\}
18. expand and simplify e.g. $(x-3)(x-4)$ \{always negative $\times$ negative $\}$
19. expand and simplify e.g. $(x-3)(x+4)$ \{never negative $\times$ negative $\}$
20. expand e.g. $x(x-4)$
21. scaffold to expand and simplify e.g. $(x+4)(x-3)$ \{exactly one subtract sign\} scaffolds for claw and boxes method
22. scaffold to expand and simplify e.g. $(x+4)(x+3)$ \{only plus\} scaffolds for claw and boxes method
23. scaffold to expand e.g. $y(y+4)$ or $x(x-3)$ scaffold is claw and arrow to invisible $\ldots$ sign

## factorise

8. factorise quadratics of the form $x^{2} \pm b x-c$ \{only a few ways to factorise $\left.c\right\}$
9. factorise quadratics of the form $x^{2} \pm b x+c$ \{only a few ways to factorise $\left.c\right\}$
10. factorise e.g. $y^{2}-49$
11. factorise e.g. $6 x y-9 y^{2}$
12. factorise e.g. $p^{2}+5 p$
13. factorise e.g. $5 x+10$
inequality
14. write the error interval for e.g. $x=7.2$ to 1 d.p. $\{$ NOT 7.0$\}$
15. scaffold to write range of values e.g. $L=18 \mathrm{~cm}$ to nearest cm scaffold is to complete $\ldots \leq L<\ldots$
16. from diagram write the algebraic inequality e.g. $x<3$ or v.v.
17. from diagram write the algebraic inequality e.g. $-2 \leq x<3$
18. from algebraic inequality e.g. $-2 \leq x<3$ write down all possible values of the integer $x$
19. from diagram write down all possible values of the integer $x$ for e.g. $-2 \leq x<3$ \{some $<\}$
20. from diagram write down all possible values of the integer $x$ for e.g. $-2 \leq x \leq 3\{$ only $\leq\}$
sequenceArithmetic
21. is $\{$ a given number\} a term of the sequence with $n$th term e.g. $4 n-6$ ? explain
22. write down the first 3 terms of the sequence where the $n$th term is given by e.g. $3 n+1$
23. write down e.g. the 20 th odd number or write down the $n$th term of the sequence $1,3,5,7$
24. explain how you know if \{a given number\} is a term of e.g. the sequence $1,5,9,13$
25. given 3 "matchstick" diagrams how many "matchsticks" in e.g. pattern number 6
26. find the term to term rule and next term or e.g. 8th term of the sequence e.g. $16,13,10,7$

10 . find e.g. the 10 th term of the sequence $1,5,9,13$
9. find $n$th term of e.g. the sequence $1,5,9,13$
8. scaffold to find $n$th term of e.g. the sequence $1,5,9,13$ scaffold is given $4 n$ is the $n$th term of $4,8,12,16$
7. write down the $n$th term of e.g. the sequence $4,8,12,16$
6. draw next "matchstick" diagram and complete 2 more values in table
5. find the term to term rule and next term of e.g. the sequence $1,5,9,13$
4. scaffold to find the term to term rule and next term of e.g. the sequence $1,5,9,13$ scaffold is hint rule is + ?.
3. scaffold to find term to term rule scaffold is e.g. Is rule +2 correct? Explain
2. scaffold to complete the next 2 terms of sequence given term to term rule scaffold is terms in speech bubbles and fingers hint

1. scaffold to complete the next 2 terms of sequence given e.g. term to term rule is +3 scaffold is terms in speech bubbles and examples counting on using \{in this case\} 3 fingers
sequenceOther
2. scaffold to find $n$th term of e.g. 4122440 scaffold is told $n$th term of 261220 is $n^{2}+n$ \{adjustment may be e.g. $\times 2$ or $\div 2$ or -3 etc \}
3. scaffold to continue sequence of Fibonacci numbers scaffold is shown method to generate sequence
4. scaffold to continue sequence of triangle numbers scaffold is shown method to generate sequence
simplifyPQ
5. simplify e.g. $\left(2 a^{2}\right)^{3}$
6. simplify e.g. $\left(a^{4}\right)^{3}$
7. simplify e.g. $\frac{18 a^{5} b^{2}}{3 a^{2} b}$
8. simplify e.g. $3 a^{2} b \times 4 a^{3} b^{4}$
9. simplify e.g. $q^{5} \div q^{3}$ or $\frac{q^{5}}{q^{3}}$ or $q^{5} \div q$
10. simplify e.g $a \times 3 a$ or $3 a \times 2 a$
11. simplify e.g. $3 a \times b$ or $3 a \times 2 b$ \{but not $3 a \times a\}$
12. simplify e.g. $f^{3} \times f^{2}\left\{\right.$ or $\left.f^{3} \times f\right\}$
13. simplify e.g $2 a \times 3$ or $2 \times a \times 3$ or $2 \times 3 a$ \{harder because must do more than miss out $\times$ signs\}
14. scaffold to simplify e.g. $f^{3} \times f^{2}\left\{\right.$ or $\left.f^{3} \times f\right\}$ scaffold is asked to complete writing out question in long winded way first
15. simplify e.g. $a \times a \times a \times a \times a$
16. e.g. Name wrote $f+f+f+f=f^{4}$ is Name correct?
17. scaffold to simplify e.g. $a \times 2$ and $a \times a$ scaffold is given less mathematical way e.g. $a 2$ and $a a$ asked to complete in a more mathematical way
18. simplify e.g. $2 \times a$ or $3 \times a \times b$ or $a \times b$ \{easier because always written in correct algebraic order so just miss out $\times$ signs $\}$
simplifySD
19. simplify e.g. $3 x y-5 x y$ or $-3 y^{2}+y^{2}$
20. simplify e.g. $5 a+3 b+7+5 a-2 b-4$
21. simplify e.g. $3 a+5+5 a-2$
22. simplify e.g $3 a+5 b+5 a-2 b$
23. simplify e.g. $5 a-a$ or $5 a+a+a+2 a$ or $5 a-2 a-2 a$ \{always $\pm a\}$
24. simplify e.g. $5 a-3 a$ or $3 a-5 a$ or $-3 a+5 a$ or $-3 a-5 a$ \{never $\pm a\}$
25. simplify e.g. $-3 a-5 a$
26. simplify e.g. $a+a+a+a+a$
27. scaffold to simplify e.g. $5 a-3 a$ or $2 x-6 x$ or $-3 y+7 y$ scaffold is diagram $\{$ never $\pm a\}$
28. simplify e.g. $3 a+5 a$
solve
29. solve linear: solution is fraction
30. solve $\left\{2\right.$ stage equation, including $\frac{x+3}{4}$ and $\frac{x}{4}+3$, solution: integer including 0 small negative and large egg. 97$\}$
31. solve e.g. $2 f+3=17-5 f\{x$ on both sides, one subtracted: solution is small positive integer
32. solve e.g. $4 e+7=6 e+1\{x$ on both sides, none subtracted: solution is small positive integer
33. solve e.g. $d+d+d=54$ or $7 d-2 d=35$
34. solve e.g. $3 c+5=17$ or $3(c-5)=21$
35. solve e.g. $3 b=36$ or $\frac{b}{3}=9$
36. solve e.g. $a+9=17$ or $a-9=17$
solveSimultaneous
37. solve simultaneous \{both equations need multiplying, solution: small integer (either sign) or $\square .5$
38. solve simultaneous \{any of previous skills, however solution, small integer (either sign) or $\square .5\}$
39. scaffold to solve simultaneous \{solution: small integer (either sign) or$.5\}$ scaffold is given hint to multiply one equation by negative one
40. solve simultaneous \{only one equation needs multiplying, then addition makes it easy e.g. $3 x+4 y=10$ and $5 x-2 y=8$ solution: small positive integer $\}$
41. solve simultaneous \{by intersection of linear graph and curved graph, both drawn\}
42. solve simultaneous $\{$ addition makes it easy e.g. $3 x+4 y=10$ and $5 x-4 y=6$ solution: small positive integer\}
43. solve simultaneous \{one is very easy to solve e.g. $4 y=12$ solution: small positive integer \}
44. solve simultaneous \{both with same subject e.g. $y=6 x-2$ and $y=2 x+1$, solution: small positive integer $\}$ LESLEY pre requisite is solve (6)
45. solve simultaneous \{by intersection of 2 linear graphs, both drawn $\}$
solvingReady
46. solve $\{2$ operation $\}$ e.g $3 \star+5=17$ or $\frac{\star}{5}-2=4$ or $3(\star+5)=21$ or $\frac{\star-2}{5}=2$
47. scaffold to solve e.g. $3(\star+5)=21$ or $\frac{\star-2}{5}=2$ scaffold is empty 2 operation function diagram
48. scaffold to solve e.g. $3(\star+5)=21$ or $\frac{\star-2}{5}=2$ scaffold is clues re order of operation and empty 2 operation function diagram
49. scaffold to solve e.g. $3 \star+5=17$ or $\frac{\star}{5}-2=4$ scaffold is empty 2 operation function diagram
50. scaffold to solve e.g. $3 \star+5=17$ or $\frac{\star}{5}-2=4$ scaffold is some clues in 2 operation function diagram and reminder of invisible $\times$ sign or fraction $\div$ sign
51. solve a $\{2$ operations $\}$ thinking of a number problem
52. scaffold to solve a $\{2$ operations $\}$ thinking of a number problem scaffold is empty function diagram
53. solve a $\{1$ operation either $\times$ or $\div\}$ thinking of a number problem
54. scaffold to solve an e.g. $\times 4$ thinking of a number problem scaffold is empty block and function diagrams
55. scaffold to solve an e.g. $\div 5$ thinking of a number problem scaffold is empty block and function diagrams
56. scaffold to use function diagram scaffold is use partially complete function diagram to solve e.g $\star+7=22$ or $22-\star=7$ \{total to 25$\}$
57. solve e.g. $\star+7=15$ or $16-\star=7\{$ maximum $8+9=17\}$
58. scaffold to solve e.g. $\star+7=15$ scaffold is given empty block diagram
59. scaffold to solve e.g. $\star+7=15$ scaffold is given block diagram and asked to complete the 3 solve equations NOT actually solve
valueAlgebra
60. find e.g. cost from word formula $\{1$ or 2 stage $\}$
61. write down the value of e.g. $C$ when $C=2 a+3 b$ and $a=5$ and $b=-2$ \{never negative times negative $\}$
62. write down the value of e.g. $C$ when $C=2 a+3 b$ and $a=5$ and $b=2$ \{both positive \}
63. write down the value of e.g. $C$ when $C=2 a$ and $a=5$ \{only positive\}
64. scaffold to write down weight in terms of $b$ and in $\mathrm{kg}\{$ given $b=5 \mathrm{~kg}\}$ scaffold is given picture context e.g. $b$ is weight (sic) of one box
65. scaffold to work out the value of e.g. $5 b$ when $b=20$, scaffold is given picture context and example such as $3 b=60$
66. scaffold to work out e.g. number of chairs given $c=7 r$ and $r=2$ scaffold is hint re invisible times sign and 7 s row of times table grid
67. work out e.g. number of packs of crisps given $\mathrm{P}=\mathrm{b}+\mathrm{c}+\mathrm{v}$ and $\mathrm{b}=7, \mathrm{c}=4$ and $\mathrm{v}=3$ writeAlgebra
68. write an expression or a formula e.g. $5 a+3$ or $T=5 a+3$
69. scaffold to write an expression or a formula e.g. $5 a+3$ or $T=5 a+3$ scaffold is given context which leads from $5 a$ to $5 a+3$
70. write an expression or a formula e.g. $5 a$ or $T=5 a$
71. scaffold to write an expression or a formula e.g. $5 a$ or $T=5 a$ scaffold is standard multiply word formula \{to help learners to recognise contexts which require multiply
72. scaffold to write an expression or a formula e.g. $5 a$ or $T=5 a$ scaffold is write a calculation first $\{$ given value of $a\}$
73. scaffold to write a formula e.g. $\mathrm{M}=7 \mathrm{~b}$ scaffold is given a word formula
74. write an expression e.g. $a+b+c$
75. scaffold to know meanings of calculation, expression and formula scaffold is match or complete given e.g. $T=a+b+c$ and values of $a$ and $b$ and $c$
76. scaffold to write expression e.g. $a+b+m$ scaffold is given another example and a context
