6th grade math worksheets

17 sheets, one of each skill, with the answer keys together from page 19.

	Sheet	Key	Page
1.	Greatest common factor 6.NS.B.4	19	**2**
2.	Least common multiple 6.NS.B.4	20	**3**
3.	GCF and LCM with factor trees 6.NS.B.4	21	**4**
4.	Dividing fractions 6.NS.A.1	22	**5**
5.	Long division 6.NS.B.2	23	**6**
6.	Multiplying decimals 6.NS.B.3	24	**7**
7.	Dividing by a decimal 6.NS.B.3	25	**8**
8.	Percent of a number 6.RP.A.3c	26	**9**
9.	What percent? 6.RP.A.3c	27	**10**
10.	Finding the whole 6.RP.A.3c	28	**11**
11.	Plotting points in four quadrants 6.NS.C.8	29	**12**
12.	Writing coordinates in four quadrants 6.NS.C.8	30	**13**
13.	Coordinate graphing picture: a star 6.NS.C.8	31	**14**
14.	Exponents: find the value 6.EE.A.1	32	**15**
15.	Writing a number as a power 6.EE.A.1	33	**16**
16.	One-step equations: adding and subtracting 6.EE.B.7	34	**17**
17.	One-step equations: multiplying and dividing 6.EE.B.7	35	**18**

Greatest common factor

Find the greatest common factor (GCF) of each pair: the largest number that divides both.

Name _____ Date _____

1. 75 and 36 GCF _____
2. 56 and 52 GCF _____
3. 65 and 47 GCF _____
4. 6 and 84 GCF _____
5. 56 and 20 GCF _____
6. 95 and 30 GCF _____
7. 66 and 84 GCF _____
8. 16 and 28 GCF _____
9. 100 and 49 GCF _____
10. 66 and 33 GCF _____
11. 10 and 70 GCF _____
12. 85 and 68 GCF _____
13. 24 and 57 GCF _____
14. 12 and 61 GCF _____
15. 50 and 43 GCF _____
16. 33 and 27 GCF _____
17. 76 and 48 GCF _____
18. 93 and 66 GCF _____
19. 16 and 64 GCF _____
20. 51 and 72 GCF _____

Least common multiple

Find the least common multiple (LCM) of each pair: the smallest number both divide into.

Name _____ Date _____

1. 12 and 6 LCM _____
2. 6 and 8 LCM _____
3. 12 and 10 LCM _____
4. 4 and 8 LCM _____
5. 5 and 7 LCM _____
6. 2 and 11 LCM _____
7. 12 and 9 LCM _____
8. 4 and 6 LCM _____
9. 6 and 9 LCM _____
10. 12 and 8 LCM _____
11. 6 and 10 LCM _____
12. 10 and 8 LCM _____
13. 9 and 6 LCM _____
14. 2 and 8 LCM _____
15. 6 and 4 LCM _____
16. 12 and 5 LCM _____
17. 10 and 4 LCM _____
18. 4 and 2 LCM _____
19. 5 and 7 LCM _____
20. 8 and 10 LCM _____

GCF and LCM with prime factors

Write each number as a product of primes, with a factor tree. Then find the GCF and the LCM.

Name _____ Date _____

1. **12** and **60**

12 = _____

60 = _____

GCF = _____ LCM = _____

2. **30** and **100**

30 = _____

100 = _____

GCF = _____ LCM = _____

3. **75** and **50**

75 = _____

50 = _____

GCF = _____ LCM = _____

4. **55** and **77**

55 = _____

77 = _____

GCF = _____ LCM = _____

5. **18** and **58**

18 = _____

58 = _____

GCF = _____ LCM = _____

6. **14** and **45**

14 = _____

45 = _____

GCF = _____ LCM = _____

Dividing fractions

Keep the first fraction, turn the second upside down and multiply. Simplest form.

Name _____ Date _____

1. $\frac{5}{8} \div \frac{1}{5} =$
2. $\frac{1}{6} \div \frac{1}{4} =$
3. $\frac{3}{5} \div \frac{1}{5} =$
4. $\frac{1}{5} \div \frac{1}{10} =$
5. $\frac{5}{6} \div \frac{5}{12} =$
6. $\frac{5}{6} \div \frac{7}{10} =$
7. $\frac{1}{3} \div \frac{5}{6} =$
8. $\frac{2}{3} \div \frac{3}{10} =$
9. $\frac{8}{9} \div \frac{4}{9} =$
10. $\frac{1}{6} \div \frac{1}{2} =$
11. $\frac{3}{4} \div \frac{1}{8} =$
12. $\frac{2}{3} \div \frac{1}{2} =$
13. $\frac{1}{2} \div \frac{1}{6} =$
14. $\frac{3}{4} \div \frac{1}{4} =$
15. $\frac{5}{8} \div \frac{1}{6} =$
16. $\frac{2}{9} \div \frac{3}{4} =$
17. $\frac{5}{9} \div \frac{4}{9} =$
18. $\frac{1}{3} \div \frac{4}{9} =$
19. $\frac{1}{4} \div \frac{1}{3} =$
20. $\frac{8}{9} \div \frac{1}{2} =$

Long division



Divide, multiply, take away, bring down. Write the answer above the line.

Name _____ Date _____

1. $98\overline{)6174}$

2. $59\overline{)6608}$

3. $17\overline{)7106}$

4. $62\overline{)5208}$

5. $88\overline{)4576}$

6. $72\overline{)1944}$

7. $97\overline{)9215}$

8. $99\overline{)1881}$

9. $77\overline{)9394}$

10. $36\overline{)2340}$

11. $96\overline{)9984}$

12. $86\overline{)6364}$

Multiplying decimals

Multiply as if there were no points. Then count the decimal places in both numbers and put that many in the answer.

Name _____ Date _____

1. 9.01 × 3.9 = _____

2. 1.51 × 0.5 = _____

3. 0.06 × 0.2 = _____

4. 5.17 × 3.2 = _____

5. 3.22 × 3.8 = _____

6. 0.35 × 3.3 = _____

7. 7.75 × 3.8 = _____

8. 8.16 × 3.5 = _____

9. 0.08 × 0.9 = _____

10. 2.96 × 1.3 = _____

11. 0.03 × 0.7 = _____

12. 5.66 × 1.3 = _____

Dividing decimals

Move the point in both numbers until the number you divide by is whole, then divide.

Name _____ Date _____

1. $0.5 \overline{)\,0.33}$

2. $1.5 \overline{)\,9.09}$

3. $1.5 \overline{)\,13.74}$

4. $0.5 \overline{)\,2.01}$

5. $0.8 \overline{)\,7.36}$

6. $2.5 \overline{)\,19}$

7. $2.5 \overline{)\,15.25}$

8. $0.8 \overline{)\,0.36}$

9. $1.2 \overline{)\,6.6}$

10. $0.6 \overline{)\,7.98}$

11. $2.5 \overline{)\,1.6}$

12. $2.5 \overline{)\,10}$

Percent of a number

Write the percent as a decimal, then multiply.

Name _____ Date _____

1. 4% of 300 =
2. 65% of 300 =
3. 35% of 1,380 =
4. 80% of 1,590 =
5. 200% of 190 =
6. 75% of 1,560 =
7. 35% of 121 =
8. 20% of 180 =
9. 15% of 26 =
10. 25% of 368 =
11. 120% of 170 =
12. 50% of 228 =
13. 90% of 550 =
14. 35% of 129 =
15. 85% of 1,060 =
16. 60% of 1,470 =
17. 4% of 200 =
18. 5% of 106 =
19. 85% of 460 =
20. 50% of 248 =

What percent is it?

Divide the part by the whole, then multiply by 100.

Name _____ Date _____

1. 22 is what percent of 20?
2. 3 is what percent of 12?
3. 6 is what percent of 12?
4. 63 is what percent of 90?
5. 133 is what percent of 152?
6. 4 is what percent of 400?
7. 238 is what percent of 280?
8. 6 is what percent of 120?
9. 92 is what percent of 230?
10. 473 is what percent of 430?
11. 81 is what percent of 180?
12. 66 is what percent of 176?
13. 116 is what percent of 232?
14. 102 is what percent of 120?
15. 84 is what percent of 210?
16. 675 is what percent of 225?
17. 1 is what percent of 25?
18. 256 is what percent of 320?
19. 252 is what percent of 210?
20. 210 is what percent of 280?

Finding the whole from a percent

Write the percent as a decimal, then divide the part by it.

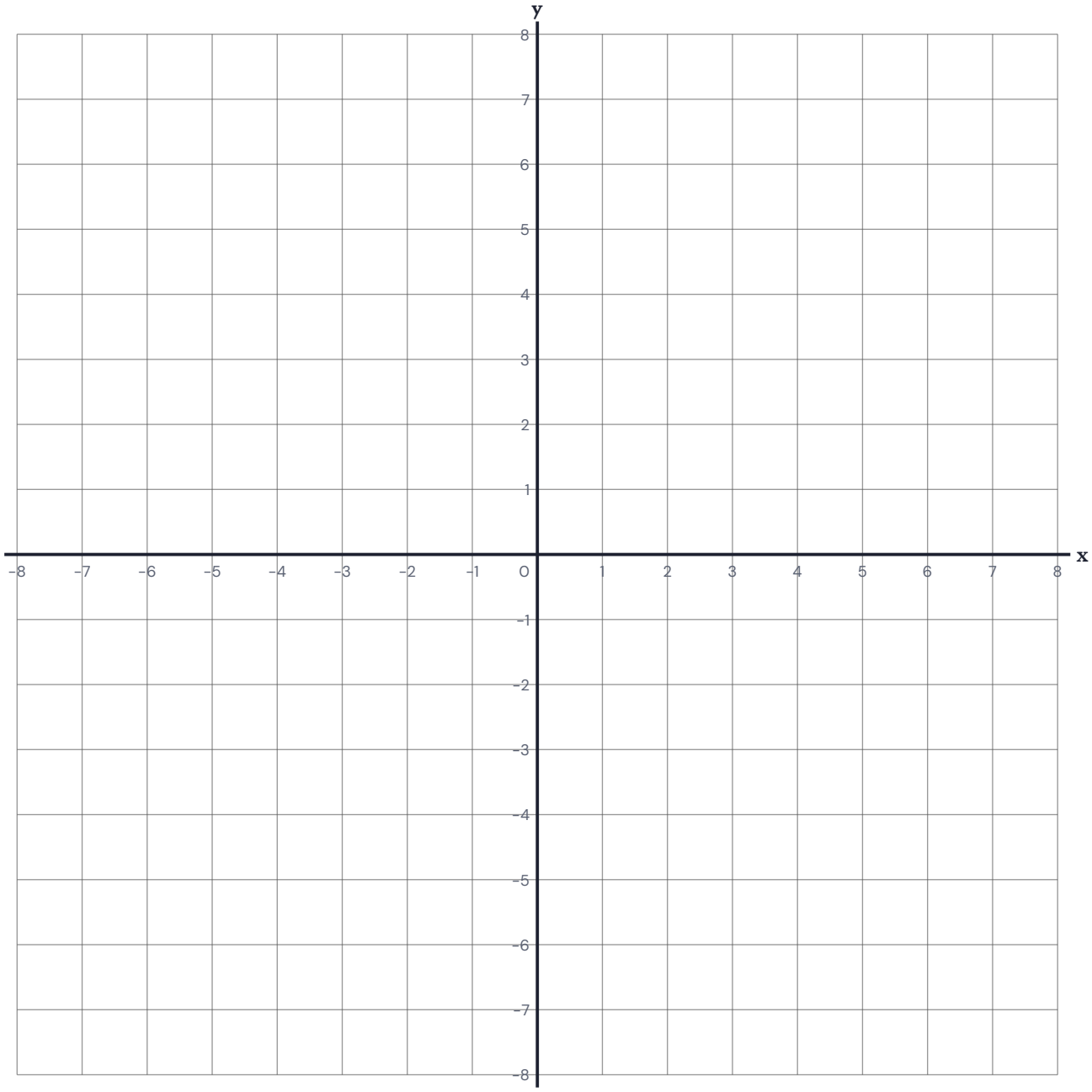
Name _____ Date _____

1. 308 is 40% of what number?
2. 30 is 8% of what number?
3. 189 is 45% of what number?
4. 444 is 120% of what number?
5. 61 is 25% of what number?
6. 175 is 50% of what number?
7. 234 is 65% of what number?
8. 147 is 175% of what number?
9. 8.5 is 85% of what number?
10. 12 is 80% of what number?
11. 210 is 70% of what number?
12. 11.1 is 15% of what number?
13. 16 is 50% of what number?
14. 649 is 110% of what number?
15. 6 is 20% of what number?
16. 4 is 8% of what number?
17. 36 is 15% of what number?
18. 238 is 85% of what number?
19. 150 is 300% of what number?
20. 20 is 50% of what number?

Plot the points

Plot each point on the grid and write its letter beside it. Go across first, then up or down.

Name _____ Date _____



A (3, 0)

B (1, -1)

C (0, 8)

D (7, 6)

E (6, 7)

F (4, -8)

G (5, 1)

H (-6, -7)

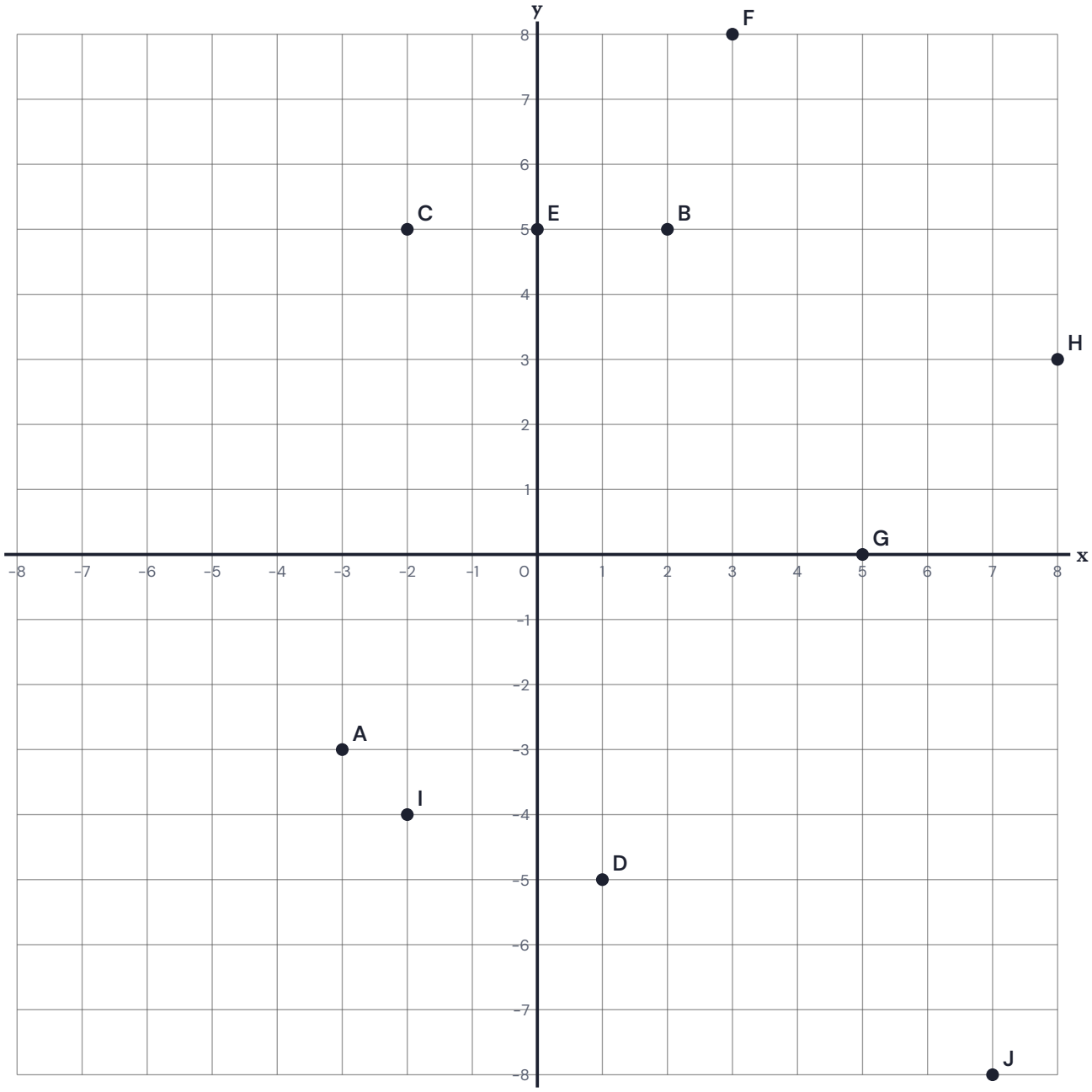
I (-5, 1)

J (5, 6)

Write the coordinates

Write the coordinates of each point: across first, then up or down.

Name _____ Date _____



A (_____ , _____)

B (_____ , _____)

C (_____ , _____)

D (_____ , _____)

E (_____ , _____)

F (_____ , _____)

G (_____ , _____)

H (_____ , _____)

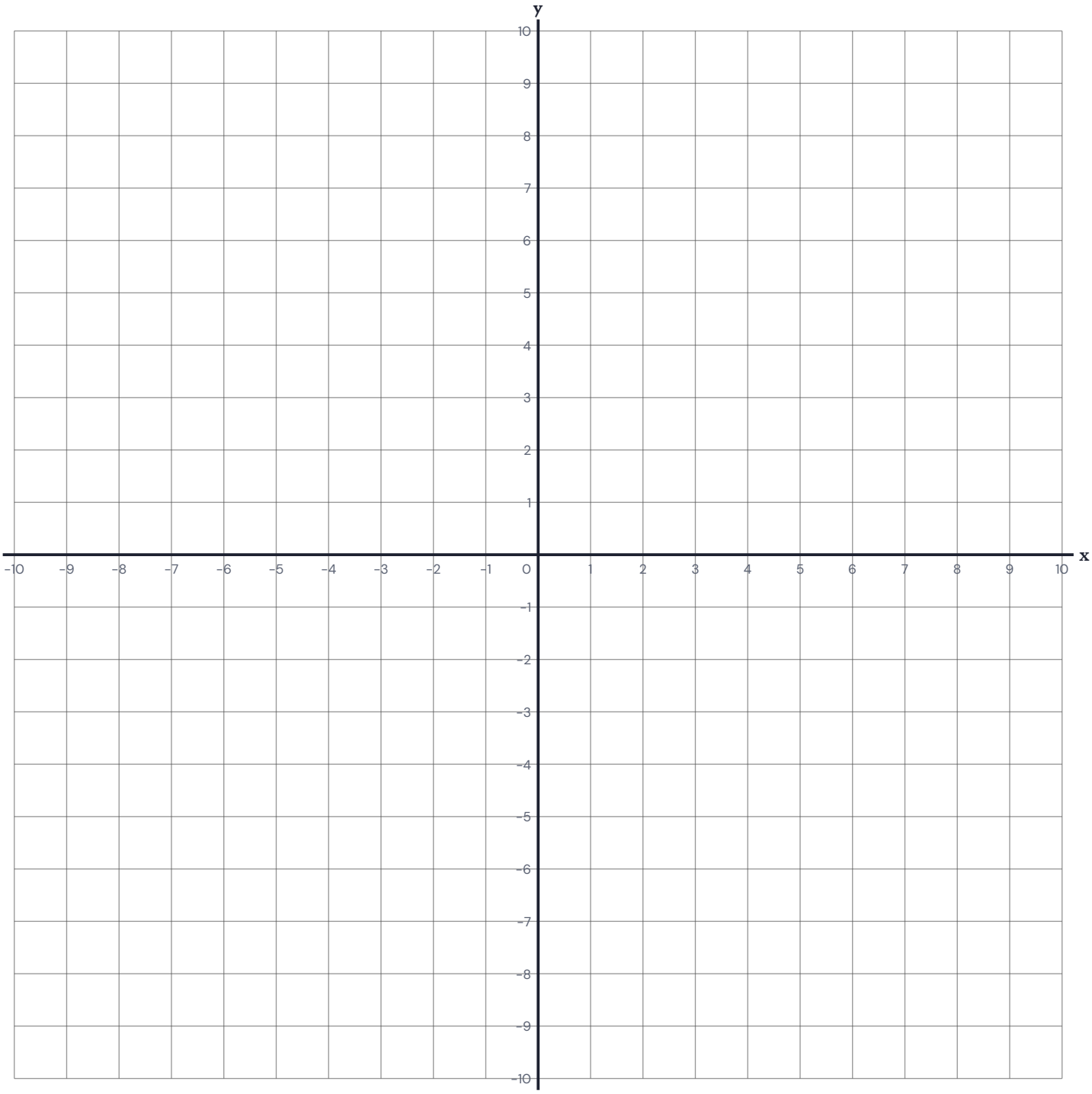
I (_____ , _____)

J (_____ , _____)

Mystery picture

Join each point to the one before it with a ruler. At Lift your pencil, start a new line.

Name _____ Date _____



1. (0, 9)
2. (2, 3)
3. (9, 3)
4. (3, -1)
5. (6, -8)
6. (0, -4)
7. (-6, -8)
8. (-3, -1)
9. (-9, 3)
10. (-2, 3)
11. (0, 9)

Exponents

Find the value of each power.

Name _____ Date _____

1. 5^3 = _____
2. 15^2 = _____
3. 5^4 = _____
4. 6^3 = _____
5. 14^2 = _____
6. 7^3 = _____
7. 4^4 = _____
8. 10^5 = _____
9. 12^2 = _____
10. 10^4 = _____
11. 9^3 = _____
12. 10^2 = _____
13. 7^2 = _____
14. 13^2 = _____
15. 2^5 = _____
16. 2^6 = _____
17. 3^2 = _____
18. 8^2 = _____
19. 6^2 = _____
20. 11^2 = _____

Exponents

Write each multiplication as a power.

Name _____ Date _____

1. $10 \times 10 \times 10 \times 10 \times 10 =$ _____
2. $9 \times 9 \times 9 =$ _____
3. $13 \times 13 =$ _____
4. $11 \times 11 =$ _____
5. $2 \times 2 \times 2 \times 2 =$ _____
6. $3 \times 3 \times 3 \times 3 \times 3 =$ _____
7. $14 \times 14 =$ _____
8. $2 \times 2 \times 2 =$ _____
9. $2 \times 2 \times 2 \times 2 \times 2 =$ _____
10. $2 \times 2 =$ _____
11. $7 \times 7 =$ _____
12. $4 \times 4 =$ _____
13. $6 \times 6 =$ _____
14. $3 \times 3 \times 3 =$ _____
15. $9 \times 9 =$ _____
16. $5 \times 5 \times 5 =$ _____
17. $8 \times 8 \times 8 =$ _____
18. $15 \times 15 =$ _____
19. $7 \times 7 \times 7 =$ _____
20. $10 \times 10 \times 10 =$ _____

One-step equations

Solve each equation. Show your working, and write the answer on the line.

Name _____ Date _____

1. $20 + x = 26$

   $x =$ _____

2. $9 = x - 20$

   $x =$ _____

3. $x + 20 = 35$

   $x =$ _____

4. $18 = x - 15$

   $x =$ _____

5. $x + 18 = 29$

   $x =$ _____

6. $x - 19 = 15$

   $x =$ _____

7. $32 = x + 13$

   $x =$ _____

8. $3 = x - 19$

   $x =$ _____

9. $2 + x = 15$

   $x =$ _____

10. $x - 3 = 9$

    $x =$ _____

11. $36 = 20 + x$

    $x =$ _____

12. $x - 13 = 7$

    $x =$ _____

13. $x + 1 = 18$

    $x =$ _____

14. $x - 18 = 7$

    $x =$ _____

15. $7 = x + 6$

    $x =$ _____

16. $x - 15 = 13$

    $x =$ _____

17. $5 + x = 19$

    $x =$ _____

18. $x - 2 = 8$

    $x =$ _____

19. $x + 14 = 15$

    $x =$ _____

20. $x - 1 = 20$

    $x =$ _____

One-step equations

Solve each equation. Show your working, and write the answer on the line.

Name _____ Date _____

1. $6x = 30$

   x = _____

2. $\frac{x}{4} = 9$

   x = _____

3. $72 = 6x$

   x = _____

4. $\frac{x}{2} = 10$

   x = _____

5. $5x = 45$

   x = _____

6. $\frac{x}{2} = 6$

   x = _____

7. $7x = 56$

   x = _____

8. $10 = \frac{x}{3}$

   x = _____

9. $16 = 2x$

   x = _____

10. $\frac{x}{2} = 11$

    x = _____

11. $7x = 84$

    x = _____

12. $\frac{x}{2} = 7$

    x = _____

13. $90 = 9x$

    x = _____

14. $\frac{x}{10} = 6$

    x = _____

15. $66 = 11x$

    x = _____

16. $\frac{x}{12} = 2$

    x = _____

17. $9x = 63$

    x = _____

18. $\frac{x}{11} = 7$

    x = _____

19. $5x = 30$

    x = _____

20. $10 = \frac{x}{4}$

    x = _____

Greatest common factor: answer key

Each answer in colour, and the factors of each number.

1. **75 and 36: GCF 3**
   Factors of 75: 1, 3, 5, 15, 25, 75
   Factors of 36: 1, 2, 3, 4, 6, 9, 12, 18, 36
   In both: 1, 3
2. **56 and 52: GCF 4**
   Factors of 56: 1, 2, 4, 7, 8, 14, 28, 56
   Factors of 52: 1, 2, 4, 13, 26, 52
   In both: 1, 2, 4
3. **65 and 47: GCF 1**
   Factors of 65: 1, 5, 13, 65
   Factors of 47: 1, 47
   In both: 1
4. **6 and 84: GCF 6**
   Factors of 6: 1, 2, 3, 6
   Factors of 84: 1, 2, 3, 4, 6, 7, 12, 14, 21, 28, 42, 84
   In both: 1, 2, 3, 6
5. **56 and 20: GCF 4**
   Factors of 56: 1, 2, 4, 7, 8, 14, 28, 56
   Factors of 20: 1, 2, 4, 5, 10, 20
   In both: 1, 2, 4
6. **95 and 30: GCF 5**
   Factors of 95: 1, 5, 19, 95
   Factors of 30: 1, 2, 3, 5, 6, 10, 15, 30
   In both: 1, 5
7. **66 and 84: GCF 6**
   Factors of 66: 1, 2, 3, 6, 11, 22, 33, 66
   Factors of 84: 1, 2, 3, 4, 6, 7, 12, 14, 21, 28, 42, 84
   In both: 1, 2, 3, 6
8. **16 and 28: GCF 4**
   Factors of 16: 1, 2, 4, 8, 16
   Factors of 28: 1, 2, 4, 7, 14, 28
   In both: 1, 2, 4
9. **100 and 49: GCF 1**
   Factors of 100: 1, 2, 4, 5, 10, 20, 25, 50, 100
   Factors of 49: 1, 7, 49
   In both: 1
10. **66 and 33: GCF 33**
    Factors of 66: 1, 2, 3, 6, 11, 22, 33, 66
    Factors of 33: 1, 3, 11, 33
    In both: 1, 3, 11, 33
11. **10 and 70: GCF 10**
    Factors of 10: 1, 2, 5, 10
    Factors of 70: 1, 2, 5, 7, 10, 14, 35, 70
    In both: 1, 2, 5, 10
12. **85 and 68: GCF 17**
    Factors of 85: 1, 5, 17, 85
    Factors of 68: 1, 2, 4, 17, 34, 68
    In both: 1, 17
13. **24 and 57: GCF 3**
    Factors of 24: 1, 2, 3, 4, 6, 8, 12, 24
    Factors of 57: 1, 3, 19, 57
    In both: 1, 3
14. **12 and 61: GCF 1**
    Factors of 12: 1, 2, 3, 4, 6, 12
    Factors of 61: 1, 61
    In both: 1
15. **50 and 43: GCF 1**
    Factors of 50: 1, 2, 5, 10, 25, 50
    Factors of 43: 1, 43
    In both: 1
16. **33 and 27: GCF 3**
    Factors of 33: 1, 3, 11, 33
    Factors of 27: 1, 3, 9, 27
    In both: 1, 3
17. **76 and 48: GCF 4**
    Factors of 76: 1, 2, 4, 19, 38, 76
    Factors of 48: 1, 2, 3, 4, 6, 8, 12, 16, 24, 48
    In both: 1, 2, 4
18. **93 and 66: GCF 3**
    Factors of 93: 1, 3, 31, 93
    Factors of 66: 1, 2, 3, 6, 11, 22, 33, 66
    In both: 1, 3
19. **16 and 64: GCF 16**
    Factors of 16: 1, 2, 4, 8, 16
    Factors of 64: 1, 2, 4, 8, 16, 32, 64
    In both: 1, 2, 4, 8, 16
20. **51 and 72: GCF 3**
    Factors of 51: 1, 3, 17, 51
    Factors of 72: 1, 2, 3, 4, 6, 8, 9, 12, 18, 24, 36, 72
    In both: 1, 3

Least common multiple: answer key

Each answer in colour, and the multiples of each number up to it.

1. **12 and 6: LCM 12**
   Multiples of 12: 12
   Multiples of 6: 6, 12
2. **6 and 8: LCM 24**
   Multiples of 6: 6, 12, 18, 24
   Multiples of 8: 8, 16, 24
3. **12 and 10: LCM 60**
   Multiples of 12: 12, 24, 36, 48, 60
   Multiples of 10: 10, 20, 30, 40, 50, 60
4. **4 and 8: LCM 8**
   Multiples of 4: 4, 8
   Multiples of 8: 8
5. **5 and 7: LCM 35**
   Multiples of 5: 5, 10, 15, 20, 25, 30, 35
   Multiples of 7: 7, 14, 21, 28, 35
6. **2 and 11: LCM 22**
   Multiples of 2: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22
   Multiples of 11: 11, 22
7. **12 and 9: LCM 36**
   Multiples of 12: 12, 24, 36
   Multiples of 9: 9, 18, 27, 36
8. **4 and 6: LCM 12**
   Multiples of 4: 4, 8, 12
   Multiples of 6: 6, 12
9. **6 and 9: LCM 18**
   Multiples of 6: 6, 12, 18
   Multiples of 9: 9, 18
10. **12 and 8: LCM 24**
    Multiples of 12: 12, 24
    Multiples of 8: 8, 16, 24
11. **6 and 10: LCM 30**
    Multiples of 6: 6, 12, 18, 24, 30
    Multiples of 10: 10, 20, 30
12. **10 and 8: LCM 40**
    Multiples of 10: 10, 20, 30, 40
    Multiples of 8: 8, 16, 24, 32, 40
13. **9 and 6: LCM 18**
    Multiples of 9: 9, 18
    Multiples of 6: 6, 12, 18
14. **2 and 8: LCM 8**
    Multiples of 2: 2, 4, 6, 8
    Multiples of 8: 8
15. **6 and 4: LCM 12**
    Multiples of 6: 6, 12
    Multiples of 4: 4, 8, 12
16. **12 and 5: LCM 60**
    Multiples of 12: 12, 24, 36, 48, 60
    Multiples of 5: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60
17. **10 and 4: LCM 20**
    Multiples of 10: 10, 20
    Multiples of 4: 4, 8, 12, 16, 20
18. **4 and 2: LCM 4**
    Multiples of 4: 4
    Multiples of 2: 2, 4
19. **5 and 7: LCM 35**
    Multiples of 5: 5, 10, 15, 20, 25, 30, 35
    Multiples of 7: 7, 14, 21, 28, 35
20. **8 and 10: LCM 40**
    Multiples of 8: 8, 16, 24, 32, 40
    Multiples of 10: 10, 20, 30, 40

GCF and LCM with prime factors: answer key

Each answer in colour, from the primes of each number.

1. **12 and 60: GCF 12, LCM 60**
   12 = 2 × 2 × 3
   60 = 2 × 2 × 3 × 5
   GCF = 2 × 2 × 3 = 12
   LCM = 2 × 2 × 3 × 5 = 60
2. **30 and 100: GCF 10, LCM 300**
   30 = 2 × 3 × 5
   100 = 2 × 2 × 5 × 5
   GCF = 2 × 5 = 10
   LCM = 2 × 2 × 3 × 5 × 5 = 300
3. **75 and 50: GCF 25, LCM 150**
   75 = 3 × 5 × 5
   50 = 2 × 5 × 5
   GCF = 5 × 5 = 25
   LCM = 2 × 3 × 5 × 5 = 150
4. **55 and 77: GCF 11, LCM 385**
   55 = 5 × 11
   77 = 7 × 11
   GCF = 11
   LCM = 5 × 7 × 11 = 385
5. **18 and 58: GCF 2, LCM 522**
   18 = 2 × 3 × 3
   58 = 2 × 29
   GCF = 2
   LCM = 2 × 3 × 3 × 29 = 522
6. **14 and 45: GCF 1, LCM 630**
   14 = 2 × 7
   45 = 3 × 3 × 5
   GCF = 1, as no prime is in both
   LCM = 2 × 3 × 3 × 5 × 7 = 630

Dividing fractions: answer key

Each answer in colour, with the working before it.

1. $\frac{5}{8} \div \frac{1}{5} = \frac{5}{8} \times \frac{5}{1} = \frac{25}{8} = 3\frac{1}{8}$

2. $\frac{1}{6} \div \frac{1}{4} = \frac{1}{6} \times \frac{4}{1} = \frac{4}{6} = \frac{2}{3}$

3. $\frac{3}{5} \div \frac{1}{5} = \frac{3}{5} \times \frac{5}{1} = \frac{15}{5} = 3$

4. $\frac{1}{5} \div \frac{1}{10} = \frac{1}{5} \times \frac{10}{1} = \frac{10}{5} = 2$

5. $\frac{5}{6} \div \frac{5}{12} = \frac{5}{6} \times \frac{12}{5} = \frac{60}{30} = 2$

6. $\frac{5}{6} \div \frac{7}{10} = \frac{5}{6} \times \frac{10}{7} = \frac{50}{42} = \frac{25}{21} = 1\frac{4}{21}$

7. $\frac{1}{3} \div \frac{5}{6} = \frac{1}{3} \times \frac{6}{5} = \frac{6}{15} = \frac{2}{5}$

8. $\frac{2}{3} \div \frac{3}{10} = \frac{2}{3} \times \frac{10}{3} = \frac{20}{9} = 2\frac{2}{9}$

9. $\frac{8}{9} \div \frac{4}{9} = \frac{8}{9} \times \frac{9}{4} = \frac{72}{36} = 2$

10. $\frac{1}{6} \div \frac{1}{2} = \frac{1}{6} \times \frac{2}{1} = \frac{2}{6} = \frac{1}{3}$

11. $\frac{3}{4} \div \frac{1}{8} = \frac{3}{4} \times \frac{8}{1} = \frac{24}{4} = 6$

12. $\frac{2}{3} \div \frac{1}{2} = \frac{2}{3} \times \frac{2}{1} = \frac{4}{3} = 1\frac{1}{3}$

13. $\frac{1}{2} \div \frac{1}{6} = \frac{1}{2} \times \frac{6}{1} = \frac{6}{2} = 3$

14. $\frac{3}{4} \div \frac{1}{4} = \frac{3}{4} \times \frac{4}{1} = \frac{12}{4} = 3$

15. $\frac{5}{8} \div \frac{1}{6} = \frac{5}{8} \times \frac{6}{1} = \frac{30}{8} = \frac{15}{4} = 3\frac{3}{4}$

16. $\frac{2}{9} \div \frac{3}{4} = \frac{2}{9} \times \frac{4}{3} = \frac{8}{27}$

17. $\frac{5}{9} \div \frac{4}{9} = \frac{5}{9} \times \frac{9}{4} = \frac{45}{36} = \frac{5}{4} = 1\frac{1}{4}$

18. $\frac{1}{3} \div \frac{4}{9} = \frac{1}{3} \times \frac{9}{4} = \frac{9}{12} = \frac{3}{4}$

19. $\frac{1}{4} \div \frac{1}{3} = \frac{1}{4} \times \frac{3}{1} = \frac{3}{4}$

20. $\frac{8}{9} \div \frac{1}{2} = \frac{8}{9} \times \frac{2}{1} = \frac{16}{9} = 1\frac{7}{9}$

Answer key

Long division

1. **6174 ÷ 98 = 63**
2. **6608 ÷ 59 = 112**
3. **7106 ÷ 17 = 418**
4. **5208 ÷ 62 = 84**
5. **4576 ÷ 88 = 52**
6. **1944 ÷ 72 = 27**
7. **9215 ÷ 97 = 95**
8. **1881 ÷ 99 = 19**
9. **9394 ÷ 77 = 122**
10. **2340 ÷ 36 = 65**
11. **9984 ÷ 96 = 104**
12. **6364 ÷ 86 = 74**

Multiplying decimals: answer key

Each answer in colour, and under it the step that places the point.

1. **9.01 × 3.9 = 35.139**
   901 × 39 = 35,139; 2 + 1 = 3 decimal places
2. **1.51 × 0.5 = 0.755**
   151 × 5 = 755; 2 + 1 = 3 decimal places
3. **0.06 × 0.2 = 0.012**
   6 × 2 = 12; 2 + 1 = 3 decimal places
4. **5.17 × 3.2 = 16.544**
   517 × 32 = 16,544; 2 + 1 = 3 decimal places
5. **3.22 × 3.8 = 12.236**
   322 × 38 = 12,236; 2 + 1 = 3 decimal places
6. **0.35 × 3.3 = 1.155**
   35 × 33 = 1,155; 2 + 1 = 3 decimal places
7. **7.75 × 3.8 = 29.45**
   775 × 38 = 29,450; 2 + 1 = 3 decimal places: 29.450
8. **8.16 × 3.5 = 28.56**
   816 × 35 = 28,560; 2 + 1 = 3 decimal places: 28.560
9. **0.08 × 0.9 = 0.072**
   8 × 9 = 72; 2 + 1 = 3 decimal places
10. **2.96 × 1.3 = 3.848**
    296 × 13 = 3,848; 2 + 1 = 3 decimal places
11. **0.03 × 0.7 = 0.021**
    3 × 7 = 21; 2 + 1 = 3 decimal places
12. **5.66 × 1.3 = 7.358**
    566 × 13 = 7,358; 2 + 1 = 3 decimal places

Dividing decimals: answer key

Each answer in colour, and under it the step that places the point.

1. **0.33 ÷ 0.5 = 0.66**
   Move both points 1 place to the right: 3.3 ÷ 5
2. **9.09 ÷ 1.5 = 6.06**
   Move both points 1 place to the right: 90.9 ÷ 15
3. **13.74 ÷ 1.5 = 9.16**
   Move both points 1 place to the right: 137.4 ÷ 15
4. **2.01 ÷ 0.5 = 4.02**
   Move both points 1 place to the right: 20.1 ÷ 5
5. **7.36 ÷ 0.8 = 9.2**
   Move both points 1 place to the right: 73.6 ÷ 8
6. **19 ÷ 2.5 = 7.6**
   Move both points 1 place to the right: 190 ÷ 25
7. **15.25 ÷ 2.5 = 6.1**
   Move both points 1 place to the right: 152.5 ÷ 25
8. **0.36 ÷ 0.8 = 0.45**
   Move both points 1 place to the right: 3.6 ÷ 8
9. **6.6 ÷ 1.2 = 5.5**
   Move both points 1 place to the right: 66 ÷ 12
10. **7.98 ÷ 0.6 = 13.3**
    Move both points 1 place to the right: 79.8 ÷ 6
11. **1.6 ÷ 2.5 = 0.64**
    Move both points 1 place to the right: 16 ÷ 25
12. **10 ÷ 2.5 = 4**
    Move both points 1 place to the right: 100 ÷ 25

Percent of a number: answer key

Each answer in colour, with the working before it.

1. 4% = 0.04; 0.04 × 300 = 12
2. 65% = 0.65; 0.65 × 300 = 195
3. 35% = 0.35; 0.35 × 1,380 = 483
4. 80% = 0.8; 0.8 × 1,590 = 1,272
5. 200% = 2; 2 × 190 = 380
6. 75% = 0.75; 0.75 × 1,560 = 1,170
7. 35% = 0.35; 0.35 × 121 = 42.35
8. 20% = 0.2; 0.2 × 180 = 36
9. 15% = 0.15; 0.15 × 26 = 3.9
10. 25% = 0.25; 0.25 × 368 = 92
11. 120% = 1.2; 1.2 × 170 = 204
12. 50% = 0.5; 0.5 × 228 = 114
13. 90% = 0.9; 0.9 × 550 = 495
14. 35% = 0.35; 0.35 × 129 = 45.15
15. 85% = 0.85; 0.85 × 1,060 = 901
16. 60% = 0.6; 0.6 × 1,470 = 882
17. 4% = 0.04; 0.04 × 200 = 8
18. 5% = 0.05; 0.05 × 106 = 5.3
19. 85% = 0.85; 0.85 × 460 = 391
20. 50% = 0.5; 0.5 × 248 = 124

What percent is it?: answer key

Each answer in colour, with the working before it.

1. 22 ÷ 20 = 1.1; 1.1 × 100 = 110%
2. 3 ÷ 12 = 0.25; 0.25 × 100 = 25%
3. 6 ÷ 12 = 0.5; 0.5 × 100 = 50%
4. 63 ÷ 90 = 0.7; 0.7 × 100 = 70%
5. 133 ÷ 152 = 0.875; 0.875 × 100 = 87.5%
6. 4 ÷ 400 = 0.01; 0.01 × 100 = 1%
7. 238 ÷ 280 = 0.85; 0.85 × 100 = 85%
8. 6 ÷ 120 = 0.05; 0.05 × 100 = 5%
9. 92 ÷ 230 = 0.4; 0.4 × 100 = 40%
10. 473 ÷ 430 = 1.1; 1.1 × 100 = 110%
11. 81 ÷ 180 = 0.45; 0.45 × 100 = 45%
12. 66 ÷ 176 = 0.375; 0.375 × 100 = 37.5%
13. 116 ÷ 232 = 0.5; 0.5 × 100 = 50%
14. 102 ÷ 120 = 0.85; 0.85 × 100 = 85%
15. 84 ÷ 210 = 0.4; 0.4 × 100 = 40%
16. 675 ÷ 225 = 3; 3 × 100 = 300%
17. 1 ÷ 25 = 0.04; 0.04 × 100 = 4%
18. 256 ÷ 320 = 0.8; 0.8 × 100 = 80%
19. 252 ÷ 210 = 1.2; 1.2 × 100 = 120%
20. 210 ÷ 280 = 0.75; 0.75 × 100 = 75%

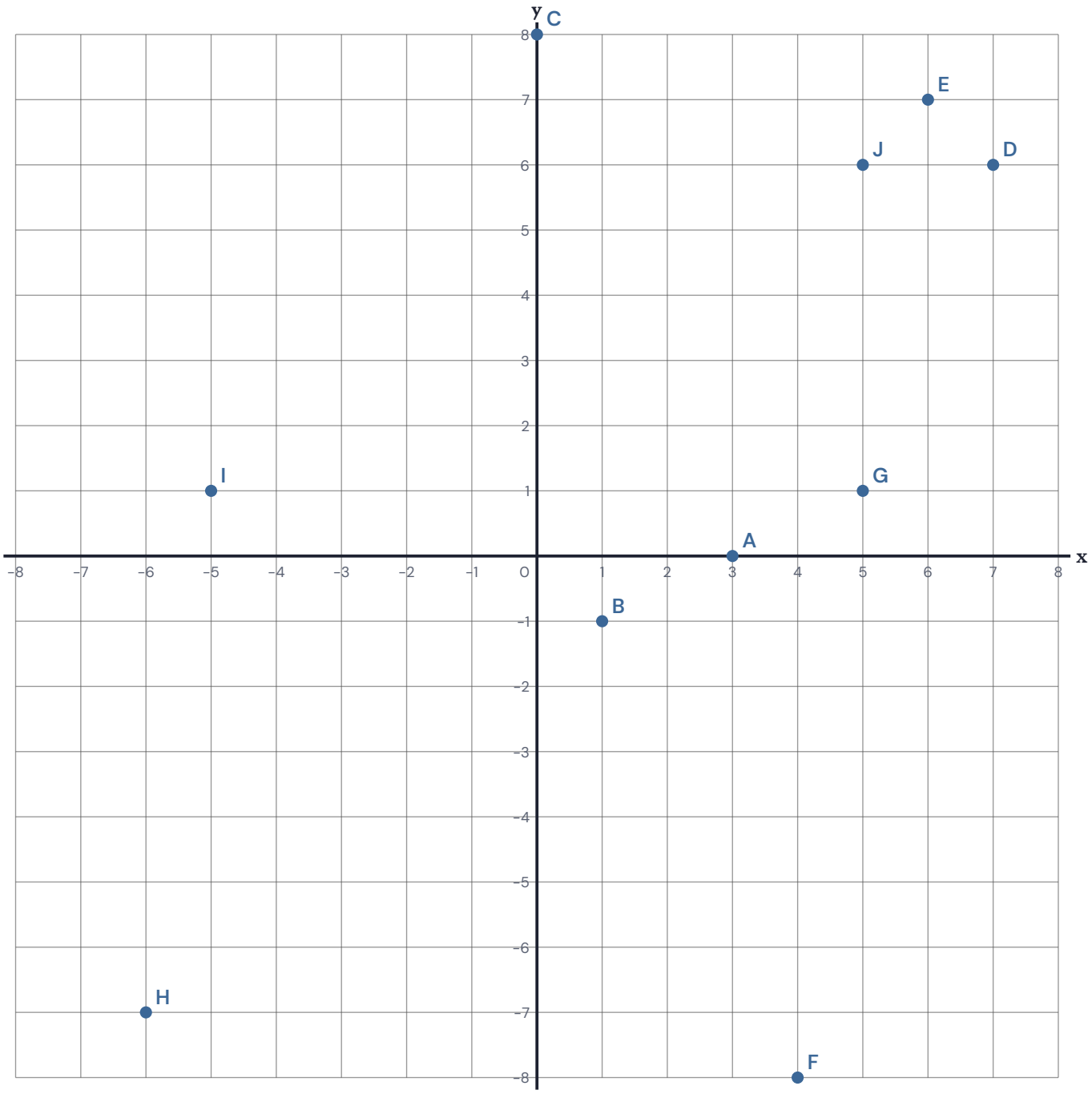
Finding the whole from a percent: answer key

Each answer in colour, with the working before it.

1. 40% = 0.4; 308 ÷ 0.4 = 770
2. 8% = 0.08; 30 ÷ 0.08 = 375
3. 45% = 0.45; 189 ÷ 0.45 = 420
4. 120% = 1.2; 444 ÷ 1.2 = 370
5. 25% = 0.25; 61 ÷ 0.25 = 244
6. 50% = 0.5; 175 ÷ 0.5 = 350
7. 65% = 0.65; 234 ÷ 0.65 = 360
8. 175% = 1.75; 147 ÷ 1.75 = 84
9. 85% = 0.85; 8.5 ÷ 0.85 = 10
10. 80% = 0.8; 12 ÷ 0.8 = 15
11. 70% = 0.7; 210 ÷ 0.7 = 300
12. 15% = 0.15; 11.1 ÷ 0.15 = 74
13. 50% = 0.5; 16 ÷ 0.5 = 32
14. 110% = 1.1; 649 ÷ 1.1 = 590
15. 20% = 0.2; 6 ÷ 0.2 = 30
16. 8% = 0.08; 4 ÷ 0.08 = 50
17. 15% = 0.15; 36 ÷ 0.15 = 240
18. 85% = 0.85; 238 ÷ 0.85 = 280
19. 300% = 3; 150 ÷ 3 = 50
20. 50% = 0.5; 20 ÷ 0.5 = 40

Plot the points: answer key

Each point plotted in colour, with its letter.



A (3, 0)

B (1, −1)

C (0, 8)

D (7, 6)

E (6, 7)

F (4, −8)

G (5, 1)

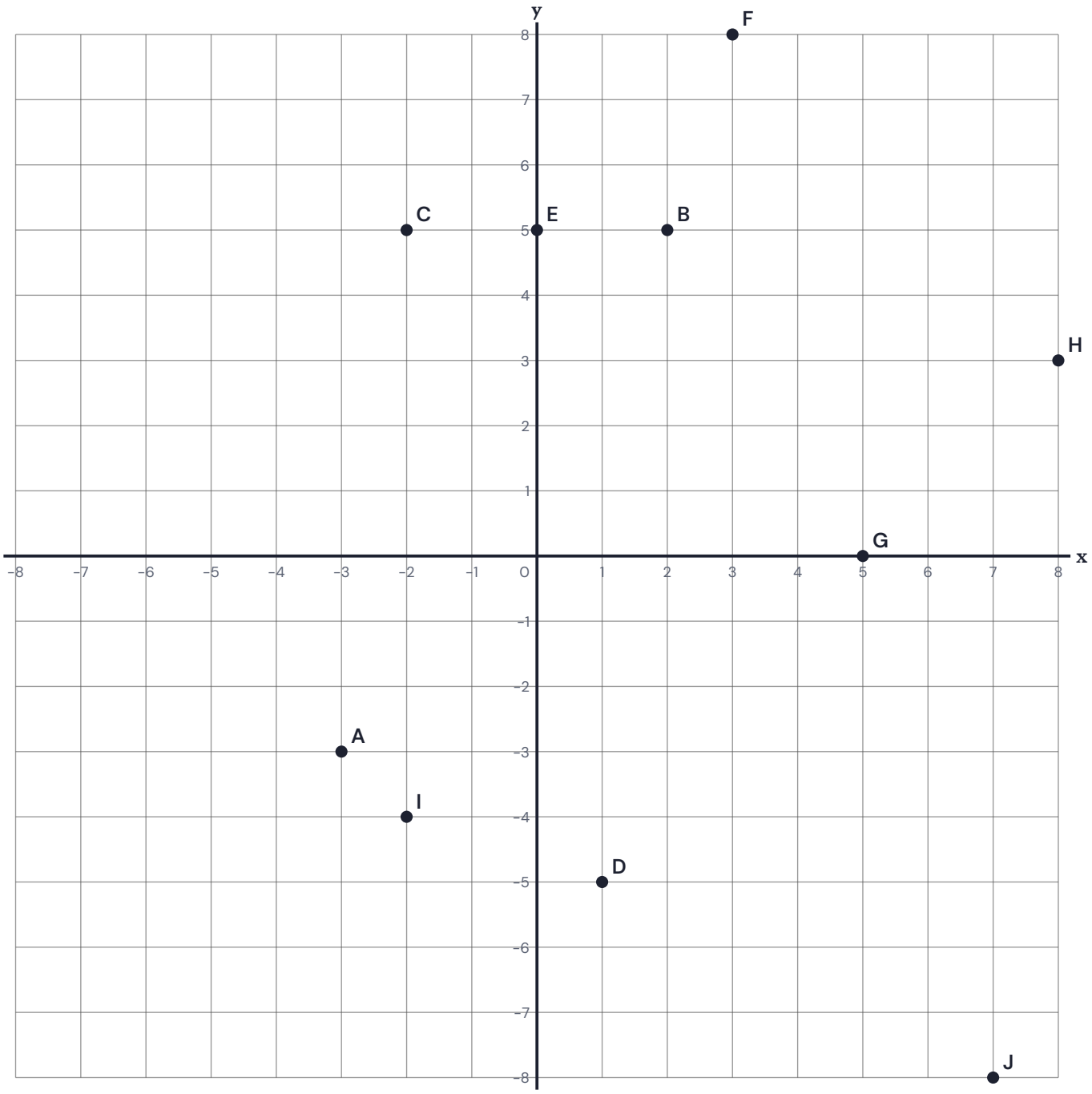
H (−6, −7)

I (−5, 1)

J (5, 6)

Write the coordinates: answer key

The coordinates in colour.



A (−3, −3)

B (2, 5)

C (−2, 5)

D (1, −5)

E (0, 5)

F (3, 8)

G (5, 0)

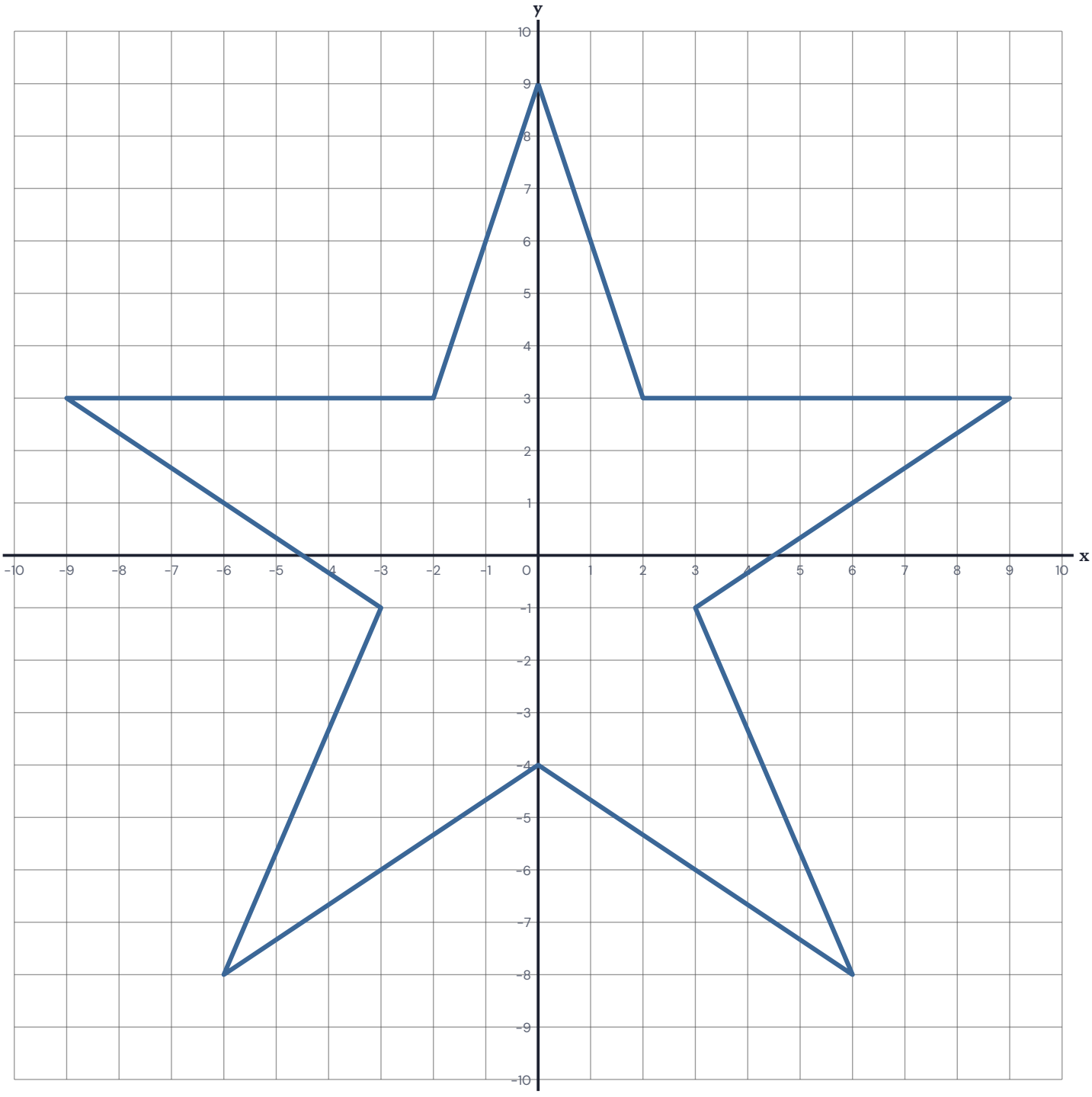
H (8, 3)

I (−2, −4)

J (7, −8)

Mystery picture: answer key

The picture is a star.



1. (0, 9)
2. (2, 3)
3. (9, 3)
4. (3, -1)
5. (6, -8)
6. (0, -4)
7. (-6, -8)
8. (-3, -1)
9. (-9, 3)
10. (-2, 3)
11. (0, 9)

Exponents: answer key

Each question worked out, the answer in colour.

1. $5^3 = 5 \times 5 \times 5 = 125$
2. $15^2 = 15 \times 15 = 225$
3. $5^4 = 5 \times 5 \times 5 \times 5 = 625$
4. $6^3 = 6 \times 6 \times 6 = 216$
5. $14^2 = 14 \times 14 = 196$
6. $7^3 = 7 \times 7 \times 7 = 343$
7. $4^4 = 4 \times 4 \times 4 \times 4 = 256$
8. $10^5 = 10 \times 10 \times 10 \times 10 \times 10 = 100{,}000$
9. $12^2 = 12 \times 12 = 144$
10. $10^4 = 10 \times 10 \times 10 \times 10 = 10{,}000$
11. $9^3 = 9 \times 9 \times 9 = 729$
12. $10^2 = 10 \times 10 = 100$
13. $7^2 = 7 \times 7 = 49$
14. $13^2 = 13 \times 13 = 169$
15. $2^5 = 2 \times 2 \times 2 \times 2 \times 2 = 32$
16. $2^6 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 = 64$
17. $3^2 = 3 \times 3 = 9$
18. $8^2 = 8 \times 8 = 64$
19. $6^2 = 6 \times 6 = 36$
20. $11^2 = 11 \times 11 = 121$

Exponents: answer key

Each question worked out, the answer in colour.

1. $10 \times 10 \times 10 \times 10 \times 10 = 10^5$
2. $9 \times 9 \times 9 = 9^3$
3. $13 \times 13 = 13^2$
4. $11 \times 11 = 11^2$
5. $2 \times 2 \times 2 \times 2 = 2^4$
6. $3 \times 3 \times 3 \times 3 \times 3 = 3^5$
7. $14 \times 14 = 14^2$
8. $2 \times 2 \times 2 = 2^3$
9. $2 \times 2 \times 2 \times 2 \times 2 = 2^5$
10. $2 \times 2 = 2^2$
11. $7 \times 7 = 7^2$
12. $4 \times 4 = 4^2$
13. $6 \times 6 = 6^2$
14. $3 \times 3 \times 3 = 3^3$
15. $9 \times 9 = 9^2$
16. $5 \times 5 \times 5 = 5^3$
17. $8 \times 8 \times 8 = 8^3$
18. $15 \times 15 = 15^2$
19. $7 \times 7 \times 7 = 7^3$
20. $10 \times 10 \times 10 = 10^3$

One-step equations: answer key

Each equation worked one step a line. What was done to both sides is beside each step.

1. **20 + x = 26**
   x = 6 Subtract 20 from both sides.
   Check: 20 + 6 = 26

2. **9 = x − 20**
   29 = x Add 20 to both sides.
   x = 29
   Check: 9 = 29 − 20

3. **x + 20 = 35**
   x = 15 Subtract 20 from both sides.
   Check: 15 + 20 = 35

4. **18 = x − 15**
   33 = x Add 15 to both sides.
   x = 33
   Check: 18 = 33 − 15

5. **x + 18 = 29**
   x = 11 Subtract 18 from both sides.
   Check: 11 + 18 = 29

6. **x − 19 = 15**
   x = 34 Add 19 to both sides.
   Check: 34 − 19 = 15

7. **32 = x + 13**
   19 = x Subtract 13 from both sides.
   x = 19
   Check: 32 = 19 + 13

8. **3 = x − 19**
   22 = x Add 19 to both sides.
   x = 22
   Check: 3 = 22 − 19

9. **2 + x = 15**
   x = 13 Subtract 2 from both sides.
   Check: 2 + 13 = 15

10. **x − 3 = 9**
    x = 12 Add 3 to both sides.
    Check: 12 − 3 = 9

11. **36 = 20 + x**
    16 = x Subtract 20 from both sides.
    x = 16
    Check: 36 = 20 + 16

12. **x − 13 = 7**
    x = 20 Add 13 to both sides.
    Check: 20 − 13 = 7

13. **x + 1 = 18**
    x = 17 Subtract 1 from both sides.
    Check: 17 + 1 = 18

14. **x − 18 = 7**
    x = 25 Add 18 to both sides.
    Check: 25 − 18 = 7

15. **7 = x + 6**
    1 = x Subtract 6 from both sides.
    x = 1
    Check: 7 = 1 + 6

16. **x − 15 = 13**
    x = 28 Add 15 to both sides.
    Check: 28 − 15 = 13

17. **5 + x = 19**
    x = 14 Subtract 5 from both sides.
    Check: 5 + 14 = 19

18. **x − 2 = 8**
    x = 10 Add 2 to both sides.
    Check: 10 − 2 = 8

19. **x + 14 = 15**
    x = 1 Subtract 14 from both sides.
    Check: 1 + 14 = 15

20. **x − 1 = 20**
    x = 21 Add 1 to both sides.
    Check: 21 − 1 = 20

One-step equations: answer key

Each equation worked one step a line. What was done to both sides is beside each step.

1. $6x = 30$
   $x = 5$ Divide both sides by 6.
   Check: $6(5) = 30$

2. $\frac{x}{4} = 9$
   $x = 36$ Multiply both sides by 4.
   Check: $\frac{36}{4} = 9$

3. $72 = 6x$
   $12 = x$ Divide both sides by 6.
   $x = 12$
   Check: $72 = 6(12)$

4. $\frac{x}{2} = 10$
   $x = 20$ Multiply both sides by 2.
   Check: $\frac{20}{2} = 10$

5. $5x = 45$
   $x = 9$ Divide both sides by 5.
   Check: $5(9) = 45$

6. $\frac{x}{2} = 6$
   $x = 12$ Multiply both sides by 2.
   Check: $\frac{12}{2} = 6$

7. $7x = 56$
   $x = 8$ Divide both sides by 7.
   Check: $7(8) = 56$

8. $10 = \frac{x}{3}$
   $30 = x$ Multiply both sides by 3.
   $x = 30$
   Check: $10 = \frac{30}{3}$

9. $16 = 2x$
   $8 = x$ Divide both sides by 2.
   $x = 8$
   Check: $16 = 2(8)$

10. $\frac{x}{2} = 11$
    $x = 22$ Multiply both sides by 2.
    Check: $\frac{22}{2} = 11$

11. $7x = 84$
    $x = 12$ Divide both sides by 7.
    Check: $7(12) = 84$

12. $\frac{x}{2} = 7$
    $x = 14$ Multiply both sides by 2.
    Check: $\frac{14}{2} = 7$

13. $90 = 9x$
    $10 = x$ Divide both sides by 9.
    $x = 10$
    Check: $90 = 9(10)$

14. $\frac{x}{10} = 6$
    $x = 60$ Multiply both sides by 10.
    Check: $\frac{60}{10} = 6$

15. $66 = 11x$
    $6 = x$ Divide both sides by 11.
    $x = 6$
    Check: $66 = 11(6)$

16. $\frac{x}{12} = 2$
    $x = 24$ Multiply both sides by 12.
    Check: $\frac{24}{12} = 2$

17. $9x = 63$
    $x = 7$ Divide both sides by 9.
    Check: $9(7) = 63$

18. $\frac{x}{11} = 7$
    $x = 77$ Multiply both sides by 11.
    Check: $\frac{77}{11} = 7$

19. $5x = 30$
    $x = 6$ Divide both sides by 5.
    Check: $5(6) = 30$

20. $10 = \frac{x}{4}$
    $40 = x$ Multiply both sides by 4.
    $x = 40$
    Check: $10 = \frac{40}{4}$