

TWO-WEEK HOLIDAY CHALLENGE (H)

HOW MANY CAN YOU DO? ... HOW MANY WILL YOU DO?

DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
If $A=2^3 \times 3^2 \times 5^3$ and $B=2^2 \times 3^7 \times 5$ What is the LCM and HCF of A and B?	A car depreciates by 10% per annum. If it cost £7200 how much is it worth in 3 years time?	$f(x) = 8x - 1$ Calculate $f(5)$	Calculate: $2\frac{3}{5} - 1\frac{5}{6}$	What is 15% of 84?	Write 68×10^4 in standard form	Write in the form $n : 1$ £3 ; 60p
Find the value of x $4^3 \times 4^x = 4^9$	Convert 8 m/s to km/hour	What is the gradient of the line between (-3,3) and (7,-2)?	Without a calculator: 12,002 - 897	Calculate: $3 \div \frac{9}{10}$	Calculate 2.5% of 84	Calculate: $(5 \times 10^3) \times (7 \times 10^6)$
What is the midpoint of (0,1) and (3,10)?	Calculate $\frac{8^3 \times 8^4}{8^6}$	What is 12.5% of £90?	If a "thing" travels at 11 m/s for 40 minutes, how far does it travel?	1cm ³ of gold has mass of 19.32g. 1cm ³ of platinum has mass of 21.45g. Which metal is denser?	Calculate: $3\frac{3}{8} \times 1\frac{2}{9}$	A "thing" costs £6500 + 20% VAT. What is the cost including VAT?
SIMPLIFY : $\sqrt{150}$	What is 5000 less than 5 million?	Calculate $\left(\frac{3}{4}\right)^{-2}$	What is the overall percentage change of a 40% increase followed by a 40% decrease?	What is $\frac{3}{8}$ written as a percentage?	y is directly proportional to x When y = 52, x = 8 Find x when y = 143	Calculate: $3\frac{4}{9} + 5\frac{3}{4}$
Simplify $a \times a + b + b + b$	Simplify $6\sqrt{56}$	Round 233.1789 to 1 significant figure	Work out: $25^{-\frac{1}{2}}$	Convert 250mm ² to cm ²	Expand and simplify $2(3x + 1) - 3(5x - 2)$	Share £39 in the ratio 9 : 3
Share £180 in the ratio 4:5	A circle has an area of 50m ² . What is its radius to the nearest cm?	The area of a square is 50cm ² . Find the length of one side - leave your answer in surd form.	$f(x) = 2x - 9$ Find $f^{-1}(x)$	Work out: $\left(\frac{4}{25}\right)^{-\frac{3}{2}} \times \left(\frac{8}{27}\right)^{\frac{1}{3}}$	What would you prefer? 40% of £50 or 50% of £40	Expand and simplify $(x - 1)(x + 1)$

DAY 8	DAY 9	DAY 10	DAY 11	DAY 12	DAY 13	DAY 14
Calculate: $3.4 \times 10^5 + 6.7 \times 10^4$	Friends A, B and C share some sweets in the ratio 2:3:5. C has 6 more sweets than B. How many sweets altogether?	Simplify $4x^{\frac{1}{2}}y^{-2} \times 3x^{\frac{3}{2}}y^3$	work out 5.3×125.8	Round 765.66 to 1 significant figure	Work out: $8\sqrt{12} \times 3\sqrt{3}$	What is the gradient of the line $2y = 3x + 6$?
I buy a "thing" for £52.26 which includes 20% VAT. What is the cost before VAT is added?	Calculate: $8.3 \times 10^5 - 7 \times 10^{-1}$	There are 7 blue pens and 2 red pens. What fraction of the pens are not red?	What is the length of the line between (-3,2) and (0,-2)?	What is 1.2×0.4 ?	x is rounded to 6000 which is 1 sig. fig. What is the error interval?	Simplify: $(x^{-2})^{-5}$
What is the reciprocal of 8?	Factorise $20ab^3 - 15a^2b^2$	what is the exact value of $\sin 60^\circ$?	When rolling a FAIR dice ... what is the probability of rolling a number greater than 2?	Solve : $9(3x-1)+5(x+3)= 24$	Without a calculator: 216.3×43.7	The equation of a Circle is given as $x^2+y^2=36$ What is the radius of the circle?
Write as a fraction $0.\dot{5}\dot{2}$	if 3 people can build a wall in 5 days. How long will it take 2 men?	Factorise $14(p+1)^2 + 28(p+1)$	A bank pays 4% compound interest. £2000 is invested, how much interest is earned over 2 years?	Find 5 numbers with a range of 10, a mode of 4, a median of 6 and a mean of 7.	Solve : $9x - 2(3x - 5) = 6$	What is the area of a square with side length 2.5cm?
Expand and simplify $(3x + 2)(5 - 2x)$	The ratio of pens:pencils is 3 : 5 The ratio of pens:rulers is 8 : 1 What is the ratio of pencils : rulers ?	make "y" the subject of $5xy + 3x = 9 - 3y$	Factorise $3a^2b + 9ab^2 + 6$	Prove that n^2+n is always a multiple of 2	What is the value of 54^0 ?	Make "a" the subject : $v^2=u^2-2as$
True or False? $-4 - -3 = -7$	Expand and simplify $(xy^2 - y)(x + 2y^2)$	What is the COSINE rule?	What is the lowest common multiple of 12, 20 and 24?	Factorise $x^2 - 25$	Find the n th term rule : 8 23 48 83 128	Write 0.9 million in standard form?

ANSWERS

DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
HCF = $2^2 \times 3^2 \times 5$ LCM = $2^3 \times 3^7 \times 5^3$	£5,248.80	39	$\frac{23}{30}$	12.6	6.8×10^5	5 : 1
$x = 6$	28.8 km	-0.5	11105	$\frac{30}{9} = 3\frac{1}{3}$	2.1	3.5×10^{10}
(1.5, 5.5)	8	£11.25	26.4 km	platinum	$\frac{33}{8} = 4\frac{1}{8}$	£7,800
$5\sqrt{6}$	4,995,000	$\frac{16}{9}$	16% increase	37.5%	$x = 22$	$\frac{331}{36} = 9\frac{7}{36}$
$a^2 + 3b$	$12\sqrt{14}$	200	$\frac{1}{5}$	2.5 cm^2	$-9x + 8$	£29.25 : £9.75
80 : 100	4 cm	$5\sqrt{2}$	$\frac{x+9}{2}$	$\frac{125}{12}$	They are the same	$x^2 - 1$
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4.07×10^5	30	$12x^4y$	666.74	800	144	gradient = 1.5
£43.55	829,9993 or 8.299993×10^5	$\frac{7}{9}$	5	0.48	$5500 \leq x < 6500$	x^{10}
$\frac{1}{8}$	$5ab^2(4b - 3a)$	$\frac{\sqrt{3}}{2}$	$\frac{4}{6} = \frac{2}{3}$	$x = \frac{9}{16}$	9452.31	6
$\frac{52}{99}$	7.5 days	$14(p+1)(p+3)$	£163.20	$4 \ 4 \ 6 \ 7 \ 14$	$x = -\frac{4}{3}$	6.25
$-6x^2 + 11x + 10$	40 : 3	$y = \frac{9-3x}{5x+3}$	$3(a^2b + 2ab^2 + 2)$	Proof given	1	$a = \frac{u^2 - v^2}{2s}$
False it is -1	$x^2y^2 + 2xy^4 - xy - 2y^3$	$a^2 = b^2 + c^2 - 2bc \cos A$	120	$(x+5)(x-5)$	$5n^2 + 3$	9×10^5