

Year 10 Homework due 1st Feb

1. Simon wants to buy a new jacket. The cost is £100. The jacket's price decreases by 10% each month. He has only £80. Show that he must wait 3 months to buy the jacket and find his change.

2. If $a=4$, $b=5\sqrt{3}$, $c=2\sqrt{5}$ and $d=3\sqrt{15}$

Find

a) ab

c) c^2

e) $bcd + a$

b) bc

d) cd

3. Simplify these expressions.

a) $\frac{6a^4b^3}{2ab}$

b) $\frac{2a^2bc^2 \times 6abc^3}{4ab^2c}$

c) $\frac{3abc \times 4a^3b^2c \times 6c^2}{9a^2bc}$

d) $81^{\frac{1}{2}}$

e) $\left(\frac{100}{36}\right)^{\frac{1}{2}}$

f) $\left(\frac{64}{125}\right)^{\frac{1}{3}}$

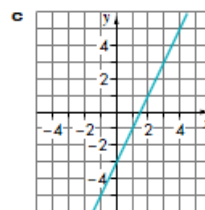
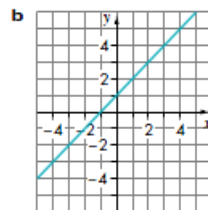
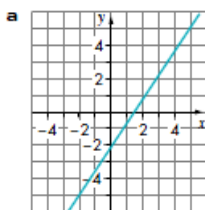
4. Solve these simultaneous equations

a) $3x + 2y = 11$
 $2x - 2y = 14$

b) $3x + 5y = 15$
 $x + 3y = 7$

c) $y = x^2 + 2x - 3$
 $y = 2x + 1$

5. Give the equation of each of these lines, all of which have positive gradients. (Each square represents 1 unit.)



- c) On a similar diagram draw the line with equation $y = -2x + 3$

6. Factorise and solve the following equations.

a) $x^2 - 4x - 12 = 0$

b) $3x^2 - 6x = 0$

c) $16x^2 - 49 = 0$

d) $5x^2 + 16x + 12 = 0$