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REVISION QUESTIONS

FORM 1 to 2  
2010-2011

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- 1.
- (a) What is a prime number? List the first 10 prime numbers.
  - (b) Write down all the multiples of 12 up to 70.
  - (c) Write down all the factors of 24.
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2. Express the following numbers in prime factors and then find the HCF and the LCM: 40, 120, 320
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3. Evaluate the following:
- (a)  $12 \cdot 2 \div 3 - 3 + 6 =$
  - (b)  $-10 + 4(-6 + 2) - 5(-1 - 7 + 3) - (-5) =$
  - (c)  $3 \cdot (-8 + 2 - 1) - (-5 - 4 + 2 + 3)^2 =$
  - (d)  $(-3 - 1 + 5 - 2)^3 - (4 - 2 - 6 - 2)^2 =$
  - (e)  $(-3 + 5)^0 + (5 - 7)^2 - (3 - 6)^3 =$
  - (f)  $13.84 \div 1.6 + 3.2 \times 1.4 =$
  - (g)  $(1.9 - 3.83)^2 - 4.8 \cdot 1.3 =$
  - (h)  $\frac{8}{9} \div \left(1\frac{2}{3} - \frac{1}{2}\right) =$
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4. Write the following numbers correct to:

- (a)  $23.345 =$  (2 decimal places)  
(b)  $155.567 =$  (4 significant figures)  
(c)  $123.52 =$  (nearest whole number)  
(d)  $3.999 =$  (2 decimal places)
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5. Write the following in index form:

- (a)  $x \cdot x \cdot x \cdot x \cdot x =$   
(b)  $y \cdot y + w \cdot w \cdot w =$   
(c)  $2 \cdot a \cdot a \cdot 2 + b \cdot b \cdot b \cdot 3 =$
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6. Simplify the following:

- (a)  $3(2x - 5) + 10 =$   
(b)  $2(x - 2) - (1 - x) - 2(3x - 7) =$   
(c)  $x^2(x + 2y - 1) - x(x + 4xy - 2x) =$   
(d)  $\frac{1}{3}(15x + 9y - 12) =$   
(e)  $3a^2b^2 - 2a^2 + 4a^2b - 2a^2b^2 - a^2 + 2ab^2 =$   
(f)  $2x(-3x + xy) - 3y(5x^2 - 1) + 8x(-x + 3) =$
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7. Simplify the following algebraic fractions:

- (a)  $\frac{x}{xy} - \frac{x+y}{9x} + \frac{y+2}{6y} =$   
(b)  $\left(-\frac{2d^2}{3e}\right) \div \left(\frac{2d^3}{9e}\right) =$   
(c)  $\frac{2}{5}(x + 2y - 3) - \frac{1}{10}(4x - y + 1) =$
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8. Solve the following equations.

(a)  $4(x - 3) - 2(3x - 12) = 42$

(b)  $2(3 - 6x) = 2(2 - 4x)$

(c)  $\frac{2}{p+3} = \frac{9}{10}$

(d)  $\frac{2}{5}(k - 3) - \frac{k+2}{4} = -\frac{1}{2}$

(e)  $\frac{3(x-2)}{4} - \frac{x+1}{6} = x$

(f)  $\frac{1}{5x^2} - \frac{4}{2x} + \frac{1}{x^2} = \frac{2}{5x}$

(g)  $2 = \frac{\sqrt{2x}}{2} + 1$

(h)  $3x^2 + 5 = 32$

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9. If  $x = 2$ ,  $y = 3$  and  $z = -1$ , find the value of:

$$A = \frac{x^3 - xy}{z(x + y)}$$

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10. (a) Find 25% of \$400,

(b) Decrease €150 by 10%,

(c) Increase 340 by 45% and decrease the result by 20%.

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11. A man buys a TV set for €500 and sells it for €640. What is the percentage profit?

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12. A shopkeeper sells a carpet for €72 and gains 20%. What did it cost him?

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13. A sum of money is split between two people in the ratio 2:3. If the smaller amount is \$100, what is the value of the larger amount and the total sum of money altogether?

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14. The map ratio of a map is 1 : 2000000. Find the distance on the map, in centimeters, which represents an actual distance of 36 *km*.

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15. Six Hong Kong dollars can be exchanged for 80 Japanese yen. How many dollars can be exchanged for 200 yen?

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16. The simple interest on €750 invested for 9 months is €45. What is the rate percentage per annum?

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17. Rob invested € 2500 in a building society account at 2% per year compound interest. Calculate the total amount in the account after three years.

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18. Maria is 32 years older than George. Ten years ago she was three times as old as George was then. Find the present age of each.

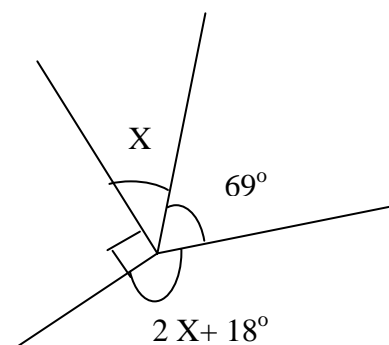
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19. When \$143 is divided in the ratio 2:4:5, what is the difference between the largest share and the smallest share?

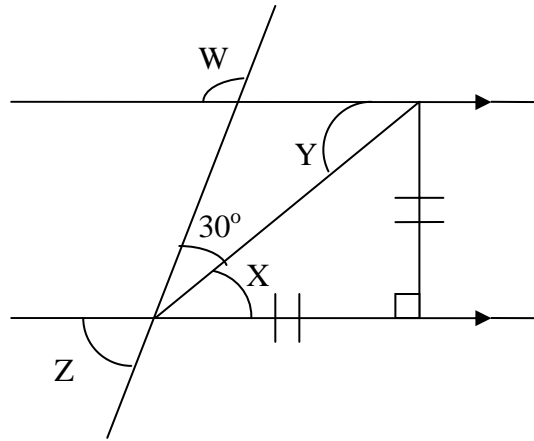
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20. Find the size of the angles marked with letters, giving reasons for your answers.

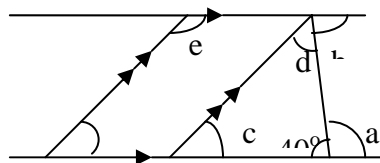
(a)



(b)



(c)



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21. Complete the following:

(a)  $1200000m = \underline{\hspace{2cm}} Km$

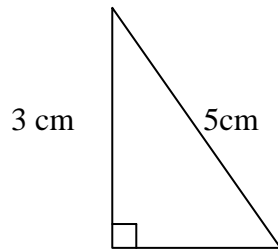
(b)  $802.15cm = \underline{\hspace{2cm}} mm$

(c)  $300000mm^2 = \underline{\hspace{2cm}} cm^2$

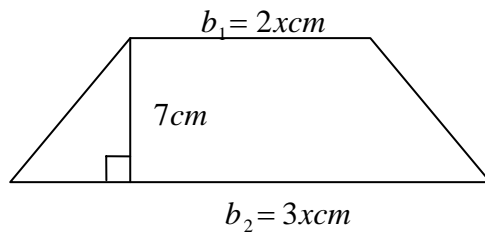
(d)  $493cm^2 = \underline{\hspace{2cm}} m^2$

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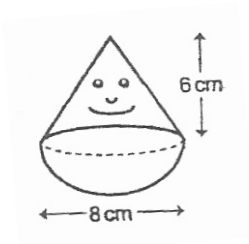
22. Find the area of the triangle.



23. Find the value of  $x$  if the area of the trapezium is  $70\text{cm}^2$ .



24. A toy consists of a solid hemisphere with a cone at the top. Find the volume of the toy, giving your answer as a fraction in terms of  $\pi$ .



25. These are the marks gained in a mathematics test by a group of pupils.

10, 12, 3, 12, 15, 8, 9, 12, 14, 13, 5, 11, 12, 10, 11, 7, 9, 12, 13, 8

Find:

- (a) the mean mark,
  - (b) the mode,
  - (c) the range of these marks,
  - (d) the median mark.
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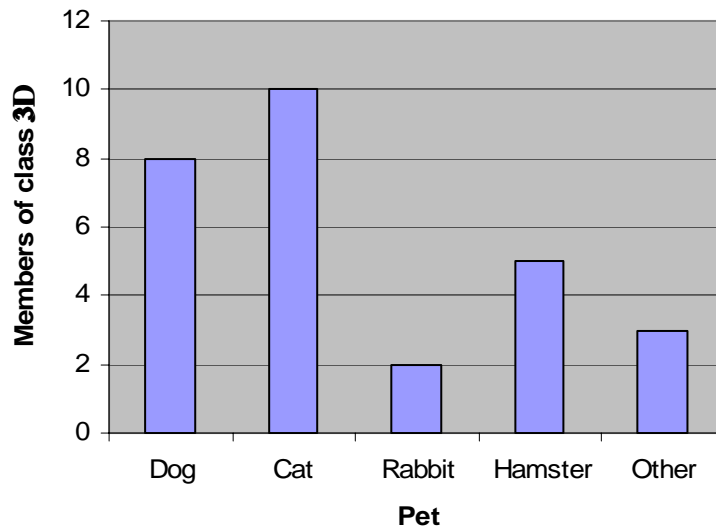
26. Convert the following recurring decimals into fractions.

(a)  $0.5\dot{3}$

(b)  $0.\dot{3}$

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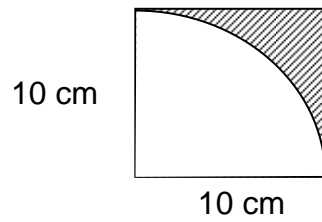
27.



Use the bar chart to answer the following questions.

- (a) What is the most popular pet?
  - (b) How many children have a dog as a pet?
  - (c) What is the total number of pets owned by members of class 3D?
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28. Find the area of the shaded region. Use  $\pi = 3.14$ . Give your answer to 1 decimal place.



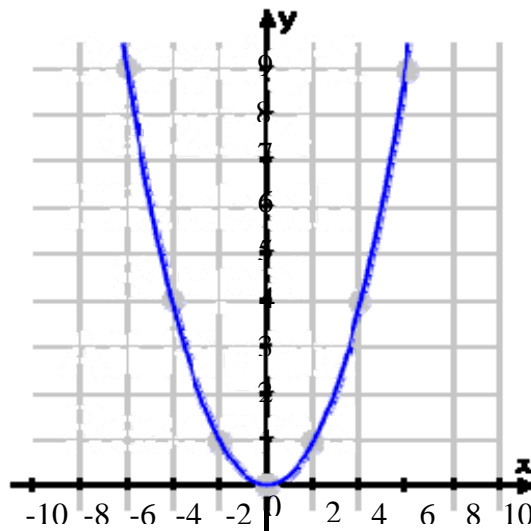
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29. A box contains 25 coloured balls, where seven are red, ten balls are blue and eight balls are yellow. A ball is selected from the box at random. Calculate the probability of selecting:

- (a) a red ball,
- (b) a blue ball,
- (c) a red or a yellow ball,
- (d) a green ball.

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30. Use the graph given below to answer the following questions:



- (a) What is the value of  $y$  when  $x$  is equal to 4?
  - (b) What is the value of  $x$  when  $y$  is equal to 9?
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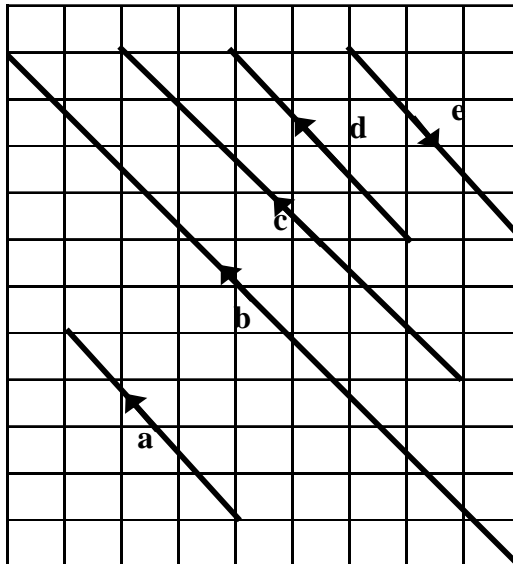
31. If  $a = \begin{pmatrix} 5 \\ -2 \end{pmatrix}$ ,  $b = \begin{pmatrix} -2 \\ 4 \end{pmatrix}$  and  $c = \begin{pmatrix} -5 \\ -3 \end{pmatrix}$ , find:

(a)  $3b$ ,

(b)  $2a + b + 3c$ ,

(c) Find the magnitude of  $a + b$ .

32. Write the vectors  $a$ ,  $b$ ,  $c$ ,  $d$  and  $e$  in the form  $\begin{pmatrix} p \\ q \end{pmatrix}$ .



What is the relationship between:

(a)  $a$  and  $b$

(b)  $a$  and  $c$

(c)  $a$  and  $d$

(d)  $a$  and  $e$

(e)  $b$  and  $e$

(f)  $d$  and  $c$ ?

**END**