

A: B: C

1. (a) $\frac{3}{5}$ as %

= $8\frac{4}{5}$

(b) $17\frac{1}{2}$ as frac

= $\frac{7}{40}$

2. 3.93

$(7.47 + 3.0) \div 5.67$ ~~2sf~~ 2sf

= 0.06607

= 0.066

3. Factorise $3x^2 - 12xy^2$

= $3x(x^2 - 4y^2)$

= $3x(x + 2y)(x - 2y)$

4. (a) $3^{23} = 27 = 3^k$

$3^{23} = 3^5 = 3^k$

$23 - 3 = k$

$20 = k$

(b) $1 \div 2x^{-5}$ simp

= $1 \div \frac{2}{x^5}$

= $1 \times \frac{x^5}{2}$

= $\frac{x^5}{2}$

5. -3, 5, t

(a) 1st and 3rd diff

t - -3

= t + 3

(b) mean = ~~3~~ $\frac{-3 + 5 + t}{3}$

= $\frac{2 + t}{3}$

$\frac{5 + 3}{3}$

6. 2:3:4 If $\div = y$, A will receive extra 20.

$2 + 3 + 4 = 9$

$9 \times 20 = 180$

7. frac $2x^2 - 5x - 3$

= $(x - 3)(2x + 1)$

b) $2x^2 - 5x - 3 = 0$

$(x - 3)(2x + 1) = 0$

$x - 3 = 0$ or $2x + 1 = 0$

$x = 3$

$2x = -1$

$x = -\frac{1}{2}$

8. $-2 \leq 2x + 4 < 18$

$-2 \leq 2x + 4$

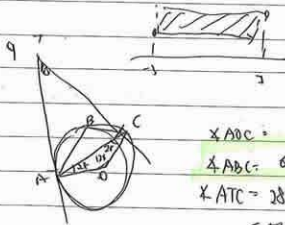
$2x + 4 < 18$

$-6 \leq 2x$

$2x < 14$

$-3 \leq x$

$x < 7$



$\angle AOC = 124^\circ$

$\angle ABC = 62^\circ$

$\angle ATC = 28^\circ \times 2$

= 56°

 118°

10 (a) $168 = 2 \times 2 \times 2 \times 3 \times 7$ $4900 = 2^2 \times 5^2 \times 7^2$

= $2^3 \times 3 \times 7$

(b) LCM of 168, 108

= $2^3 \times 3 \times 5^2 \times 7^2$

(ii) greatest intev \div 1680 \div 168

= 28

11. 3 dice throw at same time.

$$(a) P(\text{total} > 18) = \frac{1}{6} \times \frac{1}{6} \times \frac{1}{6}$$

$$= \frac{1}{216}$$

$$(b) P(3 \text{ dice show same no.}) = \frac{1}{216} \times 6$$

$$= \frac{1}{36}$$

$$(c) P(\text{total num} = 17) = \left(\frac{1}{6} \times \frac{1}{6} \times \frac{1}{6}\right) \times 3$$

$$= \frac{1}{12} \times 3$$

$$= \frac{1}{4}$$

12. $S = x \in \mathbb{N}$ an integer: $-3 \leq x \leq 3$

$$A = \{x: -3 < x < 3\} = \{-2, -1, 0, 1, 2\}$$

$$B = \{x: 0 < x \leq 3\} = \{1, 2, 3\}$$

(a) List all elements in $A \cap B = \{1, 2\}$

$$A \cup B = \{-2, -1, 0, 1, 2, 3\}$$

$$A \cap B = \{1, 2\}$$

13. $V = \text{volume of gas}$, $P = \text{pressure}$. inversely proportional

$$(a) V \propto \frac{1}{P}$$

$$V = \frac{k}{P}$$

$$3 = \frac{k}{200}$$

$$600 = k$$

$$\therefore V = \frac{600}{P}, P = 150?$$

$$V = \frac{600}{150}$$

$$= 4$$

$$(b) V = 5?$$

$$5 = \frac{600}{P}$$

$$5P = 600$$

$$P = 120$$

