Penyelesaian Lengkap

PRAKTIS 1

Kertas 1

1 $P \propto \sqrt{Q}$

$P = k\sqrt{Q}$

$P = kQ^{\frac{1}{2}}$

Jawapan/*Answer*: **A**

2 $x \propto y^2$

$x = ky^2$

$k = \dfrac{x}{y^2}$

$k = \dfrac{16}{2^2}$

$= 4$

$x = 4y^2$

$36 = 4m^2$

$m^2 = 9$

$m = \pm 3$

Jawapan/*Answer*: **C**

3 $x \propto y$

$\therefore$ x bertambah dua kali ganda, y juga bertambah dua kali ganda.

x doubles, y also doubles.

Jawapan/*Answer*: **B**

4 $T \propto \dfrac{1}{\sqrt{V}}$

$T = \dfrac{k}{\sqrt{V}}$

$T = \dfrac{k}{V^{\frac{1}{2}}}$

Jawapan/*Answer*: **C**

5 $y \propto \dfrac{1}{\sqrt{x}}$

$y = \dfrac{k}{\sqrt{x}}$

$k = y\sqrt{x}$

$= 2\sqrt{25}$

$= 10$

$y = \dfrac{10}{\sqrt{x}}$

Jawapan/*Answer*: **B**

6 $Q \propto \dfrac{1}{P^3}$

$Q = \dfrac{k}{P^3}$

$k = QP^3$

$k = (31.25)(2)^3$

$= 250$

$\therefore \quad Q = \dfrac{250}{p^3}$

$250 = \dfrac{250}{m^3}$

$m^3 = \dfrac{250}{250}$

$m = 1$

Jawapan/*Answer*: **A**

7 $x \propto \dfrac{y^3}{\sqrt{z}}$

$x = \dfrac{ky^3}{\sqrt{z}}$

$k = \dfrac{x\sqrt{z}}{y^3}$

$= \dfrac{\frac{1}{4} \times \sqrt{64}}{2^3}$

$= \dfrac{1}{4}$

$x = \dfrac{y^3}{4\sqrt{z}}$

Jawapan/*Answer*: **A**

8 $p \propto \dfrac{m}{V}$

$p = \dfrac{km}{V}$

$k = \dfrac{pV}{m}$

$= \dfrac{(500)(25)}{100}$

$= 125$

$p = \dfrac{125m}{V}$

$150 = \dfrac{125m}{50}$

$m = \dfrac{150(50)}{125}$

$= 60$

Jawapan/*Answer*: **C**

9 $P \propto \dfrac{Q^2}{R}$

$P = \dfrac{kQ^2}{R}$

$k = \dfrac{PR}{Q^2}$

$k = \dfrac{(6)(15)}{3^2}$

$= 10$

$\therefore P = \frac{10Q^2}{R}$

$8 = \frac{10(x-4)^2}{20}$

$(x-4)^2 = 16$

$x - 4 = \sqrt{16}$

$x = \pm 4 + 4$

$x = -4 + 4$ atau/*or* $4 + 4$

$x = 0$ atau/*or* 8

Jawapan/*Answer*: **C**

Kertas 2

Bahagian A

1 $V \propto Ah$

$V = kAh$

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

$= \frac{132}{36(11)}$

$= \frac{1}{3}$

$V = \frac{1}{3}Ah$

$V = \frac{1}{3}(49)(21)$

$= 343$

2 (a) $V \propto h$

$V = kh$

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

$= \frac{42}{3}$

$= 14$

$V = 14h$

(b) $h = (3 + 1.5)$ cm

$h = 4.5$ cm

$V = 14(4.5)$

$= 63 \text{ cm}^3$

3 $W \propto t$

$W = kt$

$k = \frac{W}{t}$

$= \frac{180}{6}$

$= 30$

$W = 30t$

Jumlah jam bekerja/*Total working hours*:

$t = 20 \times 4$

$= 80$ jam/*hours*

$\therefore W = \text{RM}30 \times 80$

$= \text{RM}2\,400$

4 $y \propto \frac{1}{x}$

$y = \frac{k}{x}$

$k = xy$

$= (0.9)(20)$

$= 18$

$y = \frac{18}{x}$

$x = 0.6, \quad y = \frac{18}{0.6}$

$= 30$

$y = 6, \quad 6 = \frac{18}{x}$

$x = 3$

$x = 6, \quad y = \frac{18}{6}$

$= 3$

$x = 9, \quad y = \frac{18}{9}$

$= 2$

x	0.6	0.9	3	6	9
y	30	20	6	3	2

5 $y \propto \frac{1}{x}$

$y = \frac{k}{x}$

$k = xy$

$= (90)(30)$

$= 2\,700$

$y = \frac{2\,700}{x}$

Apabila/*When* $x = 18$, $y = \frac{2\,700}{18}$

$= 150$ hari/*days*

6 $R \propto \frac{l}{d^2}$

$R = k\frac{l}{d^2}$

$k = \frac{Rd^2}{l}$

$= \frac{(560)(1)^2}{100}$

$= \frac{28}{5}$

$R = \frac{28l}{5d^2}$

$d^2 = \frac{28l}{5R}$

$= \frac{28(180)}{5(700)}$

$= \frac{36}{25}$

$d = \frac{6}{5}$

$= 1.2$ mm

7 $y \propto \frac{x}{\sqrt[3]{z}}$

$y = k\frac{x}{\sqrt[3]{z}}$

$k = \frac{y^3\sqrt{z}}{x}$

$= \frac{10(^3\sqrt{8})}{4}$

$= 5$

$y = 5\frac{x}{^3\sqrt{z}}$

$x = \frac{y^3\sqrt{z}}{5}$

$p = \frac{25(^3\sqrt{64})}{5}$

$= 20$

$q = \frac{5(28)}{^3\sqrt{125}}$

$= 28$

Bahagian B

8 (a) $A \propto hd$

$A = khd$

$k = \frac{A}{hd}$

$= \frac{840}{(60)(28)}$

$k = \frac{1}{2}$

$A = \frac{1}{2}hd$

(b) $h + d = 150$ $\quad (3 + 2)$ unit $= 150$ cm

1 unit $= \frac{150}{5}$

$= 30$ cm

$\therefore h = 3 \times 30$ $\quad d = 2 \times 30$

$= 90$ cm $\quad = 60$

$A = \frac{1}{2}(90)(60)$

$= 2\,700$ cm^2

(c) $840 : 2\,700$

$14 : 45$

9 (a) $t \propto \frac{s}{pm}$

$t = \frac{ks}{pm}$

$k = \frac{pmt}{s}$

$k = \frac{(10)(6)(2)}{12\,000}$

$= \frac{1}{100}$

$t = \frac{s}{100\,pm}$

(b) Diberi/*Given* $t = 10$, $s = 150\,000$ dan/*and* $m = 3$

$10 = \frac{150\,000}{100p(3)}$

$p = \frac{150\,000}{100(3)(10)}$

$= 50$

(c) $t = \frac{100\,000}{100(25)(5)}$

$= 8$

Upah lebihan masa/*Overtime wages*

$=$ RM$10 \times (8 - 5) \times 25$

$=$ RM750

10 (a) y berubah secara langsung dengan kuasa tiga bagi x. Graf garis lurus yang melalui asalan menunjukkan bahawa y berubah secara langsung dengan x^3.

y varies directly as the cube of x. The straight line graph that passes through the origin shows that y varies directly as x^3.

(b) $y \propto x^3$

$y = kx^3$

$k = \frac{y}{x^3}$

$k = \frac{2}{1}$

$= 2$

$y = 2x^3$

(c) $54 = 2p^3$ $\quad q = 2(4)^3$

$p^3 = 27$ $\quad q = 128$

$p = 3$

$3p : q - 2 = 3(3) : 128 - 2$

$= 9 : 126$

$= 1 : 14$

Bahagian C

11 (a) (i) $E \propto s$

$E = ks$

$E_1 = 8\,000k$

$E_2 = 9\,000k$

$E_2 - E_1 = 700$

$9\,000k - 8\,000k = 700$

$1\,000k = 700$

$k = \frac{7}{10}$

$\therefore E = \frac{7}{10}s$

(ii) $E = \frac{7}{10} \times$ RM$9\,000$

$=$ RM$6\,300$

Jumlah simpanan/*Total savings*

$=$ RM$(9\,000 - 6\,300) \times 10$

$=$ RM$27\,000$

(b) $I \propto Pt$

$I = kPt$

$k = \frac{I}{Pt}$

$= \frac{1\,600}{(20\,000)(2)}$

$= 0.04$

$I = 0.04Pt$

$I = 0.04(50\,000)(3)$

$=$ RM$6\,000$

(c) Katakan W = upah, p = bilangan pekerja dan d = bilangan hari bekerja
Let W = wages, p = number of workers and d = number of working days

(i) $W \propto pd$

$W = kpd$

$$k = \frac{W}{pd}$$

$$k = \frac{1\,000}{(5)(5)}$$

$$= 40$$

$W = 40pd$

(ii) $1\,120 = 40p(4)$

$$p = \frac{1120}{(40)(4)}$$

$$= 7$$