

الحيور التربيعية
التربيع واهل المسائل ص 11

$$\boxed{1} \sqrt{\frac{49}{169}} = \frac{7}{13}$$

$$\boxed{2} -\sqrt{2.56} = -\sqrt{2\frac{56}{100}} = -\sqrt{\frac{256}{100}}$$

$$= -\frac{16}{10} = -1.6$$

$$\boxed{3} \pm \sqrt{576} =$$

$$2 \times 2 \times 2 \times 3$$

$$= 24$$

576	2
288	2
144	2
72	2
36	2
18	2
9	3
3	3
1	

$$\boxed{4} \sqrt{0.0001} = \sqrt{\frac{1}{10000}} = \frac{1}{100}$$

$$= 0.01$$

$$\boxed{5} (\sqrt{81})^2 = (9)^2 = 81 \quad \boxed{6} (-\sqrt{0.01})^2 = (-0.1)^2 = 0.01$$

$$\boxed{7} \frac{\sqrt{100-36}}{\sqrt{16}} = \frac{\sqrt{64}}{\sqrt{16}} = \frac{8}{4} = 2 \quad \boxed{8} \sqrt{0.25+1.44} = \sqrt{1.69}$$

0.25	=	$\sqrt{1\frac{69}{100}}$
+ 1.44		
1.69	=	$\sqrt{\frac{169}{100}}$

$$= \frac{13}{10} = 1.3$$

$$[9] \sqrt{2.61 - 0.36} = \sqrt{2.25}$$

$$\begin{array}{r} 2.61 \\ - 0.36 \\ \hline 2.25 \end{array} = \sqrt{2 \frac{25}{100}} = \sqrt{\frac{225}{100}} = \frac{15}{10} = 1.5$$

$$[10] 0.4^2 + \sqrt{1.96}$$

$0.4 \times 0.4 = 0.16$

$$\sqrt{1 \frac{96}{100}} = \sqrt{\frac{196}{100}} = \frac{14}{10} = 1.4$$

$$0.16 + 1.4 = 1.56$$

$$\begin{array}{r} 0.16 \\ + 1.40 \\ \hline 1.56 \end{array}$$

$$[11] \sqrt{t^2} = \sqrt{\frac{64}{100}}$$

$$t = \pm \frac{8}{10} = \pm 0.8$$

الـ ٨

$$\left(\frac{8}{10}\right)^2 = \frac{64}{100}$$

$$\left(\frac{-8}{10}\right)^2 = \frac{64}{100}$$

$$[12] \sqrt{y^2} = \sqrt{0.0144}$$

$$y = \pm \sqrt{\frac{144}{10000}}$$

$$y = \pm \frac{12}{100}$$

الـ ١٢

$$\left(\frac{12}{100}\right)^2 = \frac{144}{10000} = 0.0144$$

$$\left(\frac{-12}{100}\right)^2 = \frac{144}{10000} = 0.0144$$

الجزء السادس
التدريب واهل المسائل ص ١٩

$$[1] \sqrt{17} \approx 4$$

$$16 \quad 17 \quad 25$$

$$[2] \sqrt{44} \approx 7$$

$$36 \quad 44 \quad 49$$

$$[3] \sqrt{70} \approx 8$$

$$64 \quad 70 \quad 81$$

$$[4] \sqrt{93} \approx 10$$

$$81 \quad 93 \quad 100$$

$$[5] \sqrt{405} = 3 \times 3 \sqrt{5} = 9\sqrt{5} \quad [6] \sqrt{\frac{132}{99}} = \frac{\sqrt{132}}{\sqrt{99}} = \frac{2\sqrt{33}}{3\sqrt{11}} = \frac{2\sqrt{3}}{3}$$

$$\begin{array}{r|l} 405 & 5 \\ \hline 81 & 3 \\ \hline 27 & 3 \\ \hline 9 & 3 \\ \hline 3 & 3 \\ \hline 1 & \end{array}$$

$$\begin{array}{r|l} 132 & 3 \\ \hline 44 & 2 \\ \hline 22 & 2 \\ \hline 11 & 1 \\ \hline 1 & \end{array} \quad \begin{array}{r|l} 99 & 3 \\ \hline 33 & 3 \\ \hline 11 & 1 \\ \hline 1 & \end{array}$$

$$[7] \frac{6\sqrt{18}}{\sqrt{18} \times \sqrt{18}} = \frac{6\sqrt{18}}{18} = \frac{\sqrt{18}}{3}$$

$$[8] (4+\sqrt{3})(5-\sqrt{27})$$

$$20 - 12\sqrt{3} + 5\sqrt{3} - 9$$

$$11 - 7\sqrt{3}$$

$$\begin{array}{r|l} 27 & 3 \\ \hline 9 & 3 \\ \hline 3 & 3 \\ \hline 1 & \end{array}$$

$$\boxed{9} \quad 4\sqrt{2} - 7\sqrt{2} + \sqrt{2}$$

$$-3\sqrt{2} + 1\sqrt{2} = -2\sqrt{2}$$

$$\boxed{10} \quad \frac{1\sqrt{20}}{\sqrt{20}\sqrt{20}} + \sqrt{81}$$

$$\frac{\sqrt{20}}{20} + \frac{9\sqrt{20}}{1\sqrt{20}}$$

$$\frac{\sqrt{20}}{20} + \frac{180}{20} = \frac{\sqrt{20} + 180}{20}$$

$$\boxed{11} \quad (6 + \sqrt{3})^2$$

$$(6 + \sqrt{3})(6 + \sqrt{3})$$

$$36 + 6\sqrt{3} + 6\sqrt{3} + 3$$

$$39 + 12\sqrt{3}$$

$$\boxed{12} \quad \sqrt{12} - 43 + 2\sqrt{9}$$

$$2\sqrt{3} - 43 + 2\sqrt{3}$$

$$2\sqrt{3} - 43 + 6$$

$$2\sqrt{3} - 37$$

$$\begin{array}{r|l} 12 & 2 \\ 6 & 2 \\ \hline 3 & 3 \\ \hline 11 & \end{array}$$

نظريه فيثاغورس
الدرج واحد المسائل 26 :

$$\boxed{1} \quad (18)^2 + (24)^2 = d^2$$

$$324 + 576 = d^2$$

$$\sqrt{900} = \sqrt{d^2}$$

$$\boxed{d = 30 \text{ cm}}$$

$$\boxed{2} \quad 8^2 + 8^2 = b^2$$

$$64 + 64 = b^2$$

$$\sqrt{128} = \sqrt{b^2}$$

$$b = 2 \times 2 \times 2 \sqrt{2}$$

$$\boxed{b = 8\sqrt{2} \text{ cm}}$$

$$\begin{array}{r|l} 128 & 2 \\ \hline 64 & 2 \\ \hline 32 & 2 \\ \hline 16 & 2 \\ \hline 8 & 2 \\ \hline 4 & 2 \\ \hline 2 & 2 \\ \hline 1 & \end{array}$$

$$\boxed{3} \quad (24)^2 + a^2 = (26)^2$$

$$576 + a^2 = 676$$

$$-576 \quad -576$$

$$\sqrt{a^2} = \sqrt{100}$$

$$\boxed{a = 10 \text{ cm}}$$

$$\boxed{4} \quad c^2 + 20^2 = 40^2$$

$$c^2 + 400 = 1600$$

$$-400 \quad -400$$

$$\sqrt{c^2} = \sqrt{1200}$$

$$\sqrt{c^2} = \sqrt{12} \times \sqrt{100}$$

$$2\sqrt{3} \times 10$$

$$\boxed{c = 20\sqrt{3} \text{ cm}}$$

$$\begin{array}{r|l} 12 & 2 \\ \hline 6 & 2 \\ \hline 3 & 3 \\ \hline 1 & \end{array}$$

$$\boxed{5} \quad x^2 + 2.5^2 = 6.5^2$$

$$x^2 + 6.25 = 42.25$$

$$-6.25 \quad -6.25$$

$$\sqrt{x^2} = \sqrt{36.00}$$

$$\boxed{x = 6 \text{ cm}}$$

$$\boxed{6} \quad x^2 + 12^2 = 13^2$$

$$x^2 + 144 = 169$$

$$-144 \quad -144$$

$$\sqrt{x^2} = \sqrt{25}$$

$$\boxed{x = 25 \text{ cm}}$$

$$\boxed{7} \quad (3)^2 \quad (4)^2 \quad (6)^2$$

$$9 + 16 \quad 36$$

$$25 \neq 36$$

ليس مثلث قائم الزاوية

$$\boxed{8} \quad (12)^2 \quad (35)^2 \quad (37)^2$$

$$144 + 1225 \quad 1369$$

$$1369 = 1369$$

نعم مثلث قائم الزاوية

$$\boxed{9} \quad (4)^2 \quad (8)^2 \quad (9)^2$$

$$16 + 64 \quad 81$$

$$80 \neq 81$$

ليست مثلث قائم الزاوية

$$\boxed{10} \quad (11)^2 \quad (60)^2 \quad (61)^2$$

$$121 + 3600 \quad 3721$$

$$3721 = 3721$$

نعم مثلث قائم الزاوية

$$\boxed{11} \quad 5^2 + 12^2 = c^2$$

$$25 + 144 = c^2$$

$$\sqrt{169} = \sqrt{c^2}$$

$$c = 13 \text{ km}$$

$$\boxed{12} \quad \text{المسافة} = 13 + 13 = 26 \text{ km}$$

من A إلى C

ذهاباً

وإياباً

المسافة

إلى

$$= 5 + 12 + 13 = 30 \text{ km}$$

وإياباً

السرعة

الأعداد الحقيقية
أترتب وأحل المسائل ص 35

نسبي $\frac{2}{3}$ [1] غير نسبي $\sqrt{20}$ [2] نسبي عشري 5.2 [3] عدد

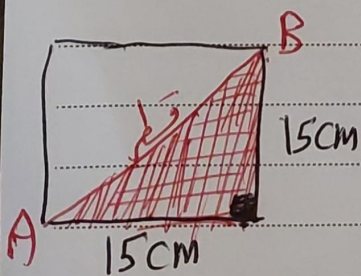
نسبي $\frac{18}{6}$ [4] $\sqrt{20} > 3.9$ [8] $3.9 > -3.0$ [9] $9.61 > -3.11$

نسبي $\frac{20}{3}$ [10] $\sqrt{36}$ [11] $4, \frac{21}{4}, 5.6$

المطلوب تنازلياً

أكبر $\sqrt{36}, 5.6, \frac{21}{4}, 4$ أصغر

[12]



بما أنه مثلث قائم الزاوية
نستطيع استخدام
نظرية فيثاغورس

$$(15)^2 + (15)^2 = (AB)^2$$

$$225 + 225 = (AB)^2$$

$$\sqrt{450} = \sqrt{(AB)^2}$$

$$AB = 3 \times 5 \sqrt{2}$$

$$AB = 15\sqrt{2} \text{ cm}$$

حار أصم لأن العدد غير نسبي

450	2
225	5
45	5
9	3
3	3
1	