แบบฝึกหัดเรื่อง Real Number
ชื่อ-นามสกุล $\qquad$

เลขประจำตัว No. 3

1. กำหนด $p(x)=-a x^{4}+x^{5}+c x^{2}-2 x^{3}+3 x+4$,

$$
q(x)=4 x^{2}-2 x^{3}+x^{5}+4 x^{4}+4-b x \quad \text { ถ้า } p(x)=q(x) \text { จงหาค่า } a, b \text { และ } c
$$

$$
a=-4
$$

2. กำหนด $p(x)=x^{2}+4, q(x)=3 x^{2}+x+4$,

$$
m=3
$$

2.1) $p(x)+q(x)=$
2.2) $p(x)-q(x)=x^{2}+4-\left(3 x^{2}+x+4\right)$

$$
\begin{aligned}
& =\frac{x^{2}+4+\left(3 x^{2}+x+4\right)}{} \begin{array}{l}
=\frac{\sqrt{4}+x+8}{2.3)} q(x)-p(x) \\
=3 x^{2}+x+4-\left(x^{2}+4\right) \\
\\
=2 x^{2}+x
\end{array}
\end{aligned}
$$

$$
\text { 2.4) } m p(x)-n q(x)=3\left(x^{2}+4\right)-5\left(3 x^{2}+x+4\right)
$$

$$
\begin{aligned}
& =3 x^{2}+12-15 x^{2}-5 x-20 \\
& =-12 x^{2}-5 x-8
\end{aligned}
$$

2.5) $p(x) \cdot q(x)=\left(x^{2}+4\right)\left(3 x^{2}+x+4\right)$
2.6) $p^{2}(x)=\left(x^{2}+4\right)^{2}$

$$
\begin{aligned}
& =3 x^{4}+x^{3}+4 x^{2}+12 x^{2}+4 x+16 \\
& =3 x^{4}+x^{3}+16 x^{2}+4 x+16
\end{aligned}
$$

$$
=x^{4}+8 x^{2}+16
$$

3. กำหนด $p(x)=x^{2}-2 x+2$
$q(x)=x^{3}+6 x^{2}-4$
จงหา $p(x) \cdot q(x)$

$$
\begin{aligned}
p(x) \cdot q(x) & =\left(x^{2}-2 x+2\right)\left(x^{3}+6 x^{2}-4\right) \\
& =x^{5}+6 x^{4}-4 x^{2}-2 x^{4}-12 x^{3}+8 x+2 x^{3}+12 x^{2}-8 \\
& p(x): q(x)=x^{5}+4 x^{4}-10 x^{3}+8 x^{2}+8 x-8
\end{aligned}
$$

4. ถ้า $E q: x^{2}-x-20=(x-a)(x-b)$ $\qquad$ จงหา (1) $a+b$ (2) $a b$

$$
\begin{aligned}
x^{2}-x-20 & =x^{2}-b x-a x+a b \\
& =x^{2}-(a+b) x+a b
\end{aligned}
$$

フดว่า

$$
\begin{aligned}
a+b & =1 \\
a b & =-20
\end{aligned}
$$

ตอบ (1) $a+b=$ $\square$ 1 $a b=-20$
5. ถ้า $E q: x^{2}-6 x+25=(x-a)^{2}+b^{2}$ :มื่อ $b>0$ จงหา $1 a$ (2) $b$ (3ab $x^{2}-6 x+25=x^{2}-2 a x+a^{2}+b^{2}$ Yü力 $2 a=6 \rightarrow a=\frac{6}{2}=$ 会 $a^{2}+b^{2}=25 \rightarrow(3)^{2}+b^{2}=25 \rightarrow b^{2}=16 \rightarrow b= \pm 4$ ตอบ $0 a=3$
(2b 4
(3) $a b=(3)(4)=12 \quad \therefore b=4(b>0)$
6. กำหนด $D(x)=x^{2}-3 x$ และ $R(x)=4 x-5$

จงหาพหุนาม $P(x)$ ที่เืื่อหารด้วย $D(x)$ แล้วได้ผลหารคือ $Q(x)$ และเศษเหลือคือ $R(x)$
gau $P(x)=$
$=$
7. จงหาผลหาร $Q(x)$ และเศเหลือ $R(x)$ จากการหารพหุนาม $a(x)$ ด้วยพหุนาม $b(x)$
7.1) $a(x)=$ $x^{5}+3 x^{4}-x^{3}-3 x^{2}+4$ $b(x)=x^{2}$

ตออ $Q(x)=x^{3}+3 x^{2}-x-3$

$$
R(x)=-4
$$

7.3) $a(x)=x^{3}-1$
$b(x)=x^{2}-6$

ตอบ $Q(x)=\ldots$

$$
R(x)=6 x-1
$$

7.5) $a(x)=4 x^{5}+3$
$b(x)=x^{2}+2$
7.2) $a(x)=x^{5}+3 x^{4}-x^{3}-3 x^{2}+4$ $b(x)=x^{4}$

ตอบ $Q(x)=x+3$

$$
R(x)=-x^{3}-3 x^{2}+4
$$

7.4) $a(x)=x^{4}+x^{3}+4 x^{2}-3$

$$
b(x)=x+3
$$

ตอบ $Q(x)=x^{3}-2 x^{2}+10 x-30$

$$
R(x)=87
$$

7.6) $a(x)=x^{6}+3 x^{3}-5$

$$
b(x)=x^{3}+2
$$

وอบ $Q(x)=4 x^{3}-8 x$
$R(x)=16 x+3$ Real01 for No. 3

$$
\begin{aligned}
& \text { NoO1 }=\left[\begin{array}{c}
\mathrm{p}(x)=-a x^{4}+x^{5}+c x^{2}-2 x^{3}+3 x+4 \\
\mathrm{q}(x)=4 x^{2}-2 x^{3}+x^{5}+4 x^{4}+4-b x
\end{array}\right] \\
& \text { NoO2 }=\left[\begin{array}{c}
\mathrm{p}(x)=x^{2}+4 \\
\mathrm{q}(x)=3 x^{2}+x+4 \\
m=3 \\
n=5
\end{array}\right] \\
& \text { No03 }=\left[\begin{array}{l}
\mathrm{p}(x)=x^{2}-2 x+2 \\
\mathrm{q}(x)=x^{3}+6 x^{2}-4
\end{array}\right] \\
& \text { No04 }=\left(E q=\left[x^{2}-x-20=(x-a)(x-b)\right]\right) \\
& \text { No05 }=\left(E q=\left[x^{2}-6 x+25=(x-a)^{2}+b^{2}\right]\right) \\
& \text { No06 }=\left[\mathrm{D}(x)=x^{2}-3 x, \mathrm{Q}(x)=x^{2}+5, \mathrm{R}(x)=4 x-5\right] \\
& \text { No07 }=\left[\begin{array}{cc}
.1=\left[\begin{array}{c}
\mathrm{a}(x)=x^{5}+3 x^{4}-x^{3}-3 x^{2}+4 \\
\mathrm{~b}(x)=x^{2}
\end{array}\right] & .2=\left[\begin{array}{c}
\mathrm{a}(x)=x^{5}+3 x^{4}-x^{3}-3 x^{2}+4 \\
\mathrm{~b}(x)=x^{4}
\end{array}\right] \\
.3=\left[\begin{array}{c}
\mathrm{a}(x)=x^{3}-1 \\
\mathrm{~b}(x)=x^{2}-6
\end{array}\right] & .4=\left[\begin{array}{c}
\mathrm{a}(x)=x^{4}+x^{3}+4 x^{2}-3 \\
\mathrm{~b}(x)=x+3
\end{array}\right] \\
.5=\left[\begin{array}{c}
\mathrm{a}(x)=4 x^{5}+3 \\
\mathrm{~b}(x)=x^{2}+2
\end{array}\right] & .6=\left[\begin{array}{c}
\mathrm{a}(x)=x^{6}+3 x^{3}-5 \\
\mathrm{~b}(x)=x^{3}+2
\end{array}\right]
\end{array}\right]
\end{aligned}
$$

[^0]X Math@MUT XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX6300302-00003XX Real01 Answers for No. 3

$$
\begin{aligned}
& \text { Ansl }=[a=-4, b=-3, c=4] \\
& \text { Ans } 2=\left[\begin{array}{cc}
.1=\left[\mathrm{p}(x)+\mathrm{q}(x)=4 x^{2}+x+8\right] & .2=\left[\mathrm{p}(x)-\mathrm{q}(x)=-2 x^{2}-x\right] \\
.3=\left[\mathrm{q}(x)-\mathrm{p}(x)=2 x^{2}+x\right] & .4=\left[\mathrm{mp}(x)-\mathrm{nq}(x)=-12 x^{2}-5 x-8\right] \\
.5=\left[\mathrm{p}(x) \mathrm{q}(x)=3 x^{4}+x^{3}+16 x^{2}+4 x+16\right] & .6=\left[[\mathrm{p}(x)]^{2}=x^{4}+8 x^{2}+16\right]
\end{array}\right] \\
& \text { Ans3 } 3=\left[\mathrm{p}(x) \mathrm{q}(x)=x^{5}+4 x^{4}-10 x^{3}+8 x^{2}+8 x-8\right] \\
& \text { Ans } 4=[a+b=1, a b=-20], \quad, A n s 5=[a=3, b=4, a b=12] \\
& \text { Ans6 }=\left[\mathrm{P}(x)=x^{4}-3 x^{3}+5 x^{2}-11 x-5\right] \\
& \left.A n s 7=\left[\begin{array}{cc}
.1=\left[\begin{array}{c}
\mathrm{Q}(x)=x^{3}+3 x^{2}-x-3 \\
\mathrm{R}(x)=4
\end{array}\right.
\end{array}\right] \quad .2=\left[\begin{array}{c}
\mathrm{Q}(x)=x+3 \\
\mathrm{R}(x)=-x^{3}-3 x^{2}+4
\end{array}\right] .\left[\begin{array}{c}
\mathrm{Q}(x)=x \\
\mathrm{R}(x)=6 x-1
\end{array}\right] \quad .4=\left[\begin{array}{c}
\mathrm{Q}(x)=x^{3}-2 x^{2}+10 x-30 \\
\mathrm{R}(x)=87
\end{array}\right]\right]\left[\begin{array}{c}
\mathrm{Q}(x)=x^{3}+1 \\
\mathrm{R}(x)=-7
\end{array}\right] \quad .6=\left[\begin{array}{c}
\mathrm{Q}(x)=4 x^{3}-8 x \\
\mathrm{R}(x)=16 x+3
\end{array}\right] \quad . \quad
\end{aligned}
$$

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