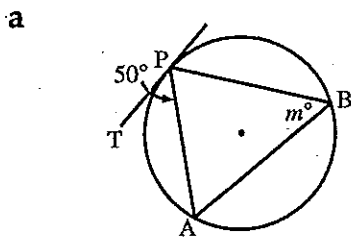


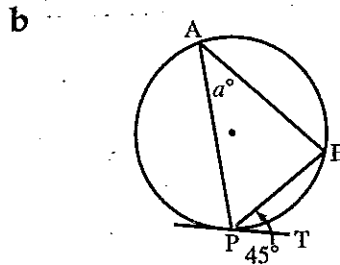
Circle geometry (OPTION 5)

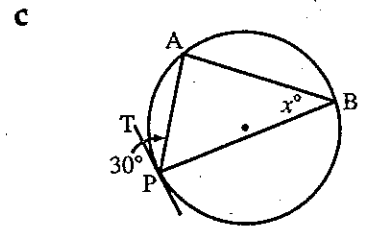


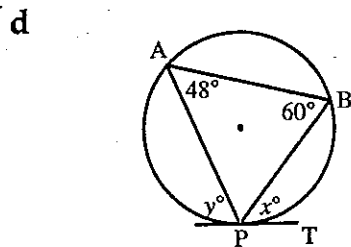
UNIT 5: The angle in the alternate segment

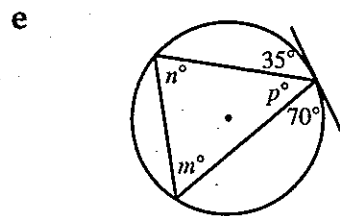
QUESTION 1 Find the value of the pronumeral.

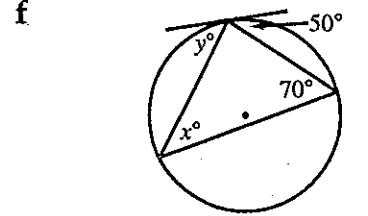




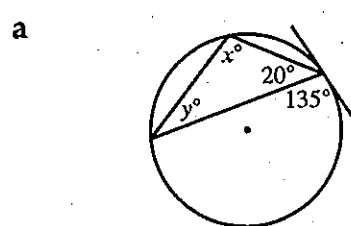


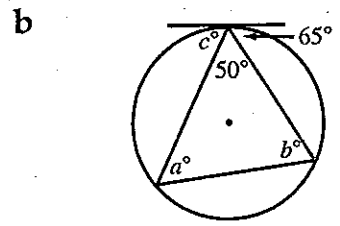


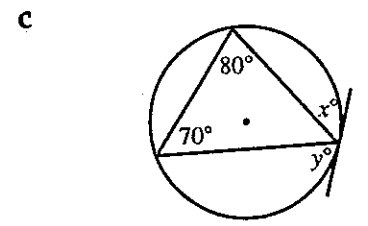


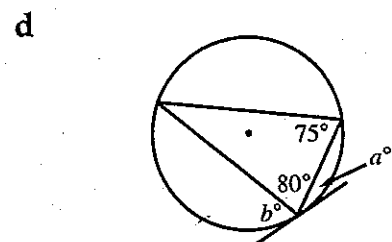


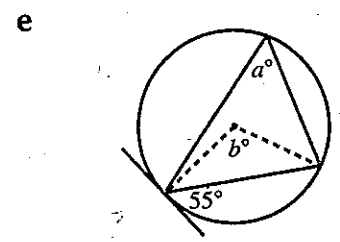
QUESTION 2 Find the value of the pronumeral.

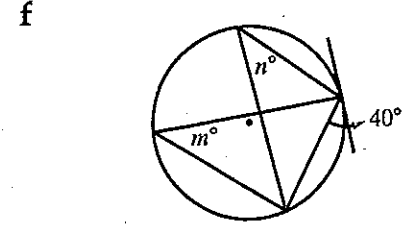










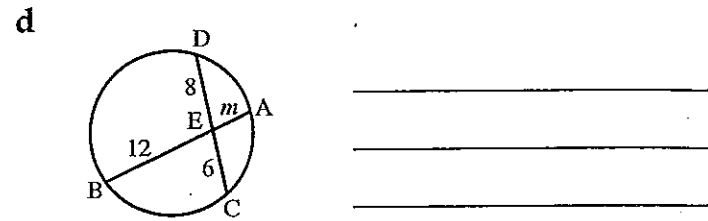
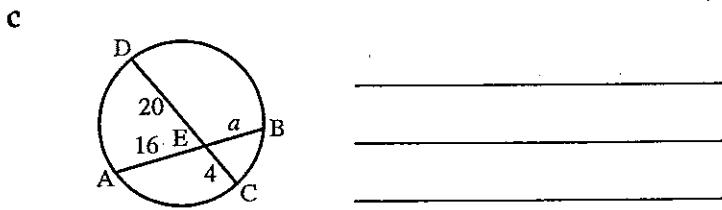
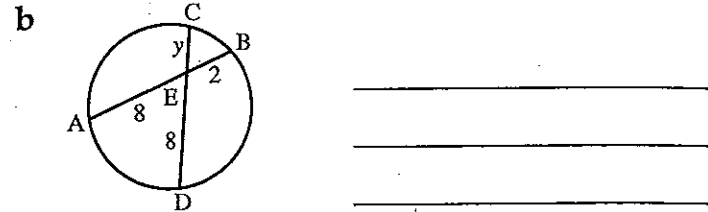
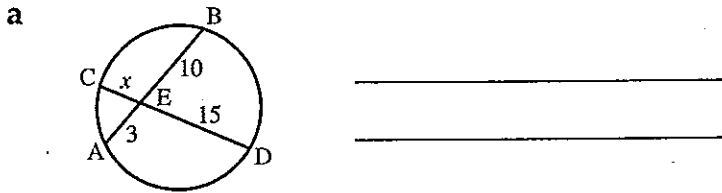


Circle geometry (OPTION 5)

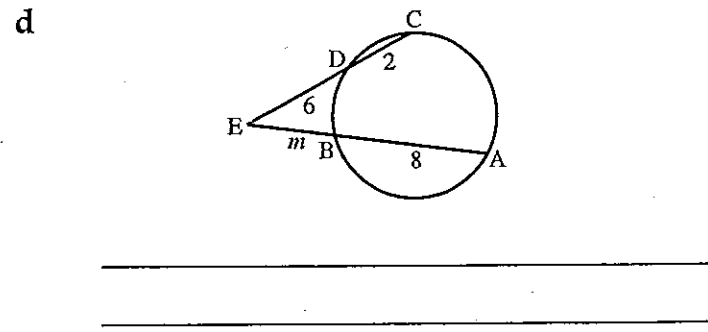
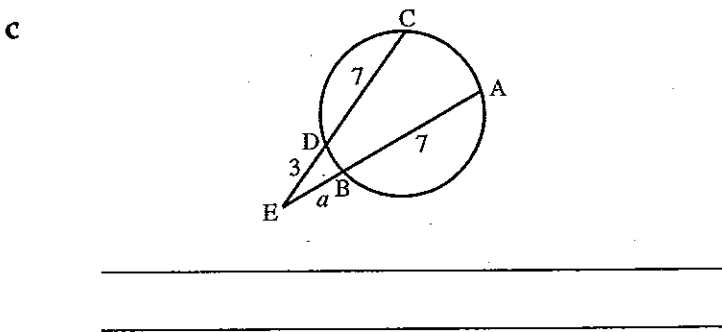
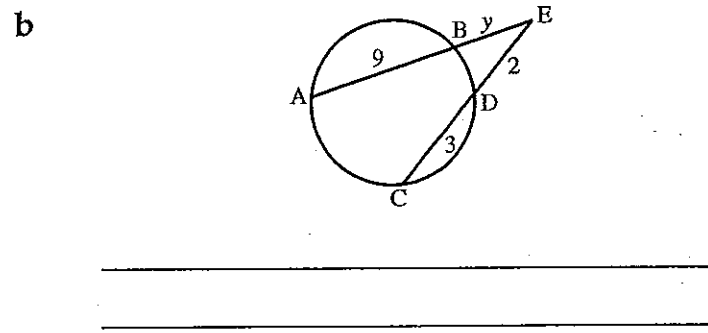
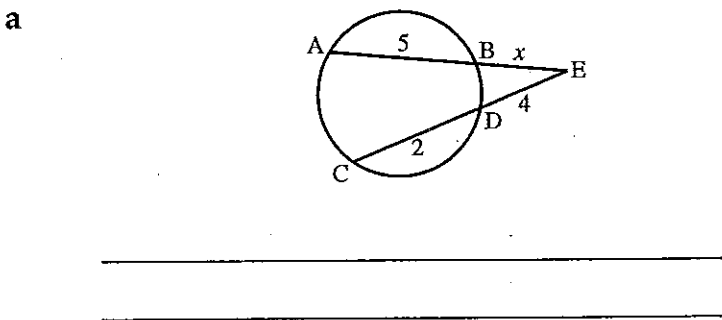


UNIT 6: Further properties of a circle

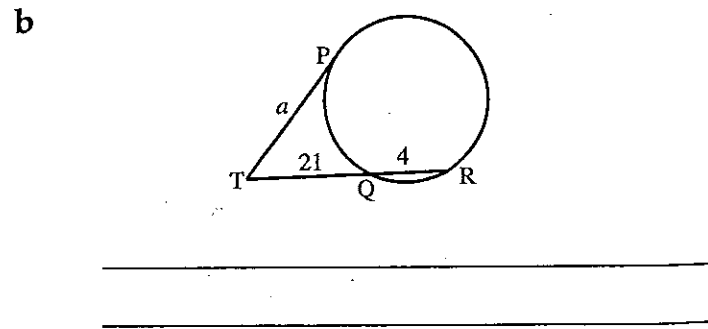
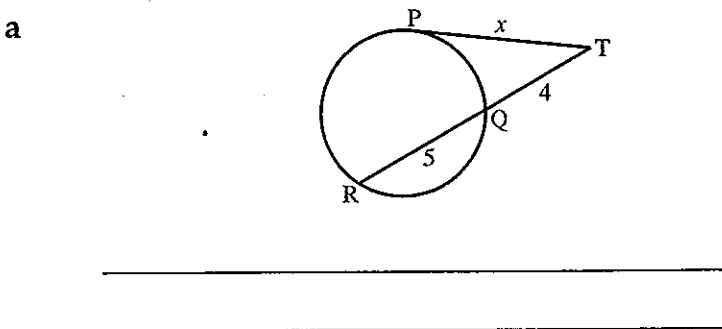
QUESTION 1 Find the value of the pronumeral. All measurements are in centimetres.



QUESTION 2 Find the value of the pronumeral. All measurements are in centimetres.



QUESTION 3 Find the value of the pronumeral. All measurements are in centimetres.

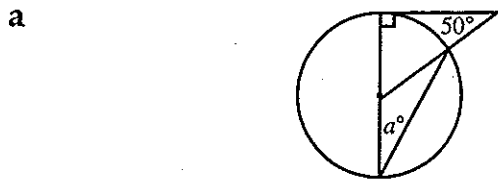


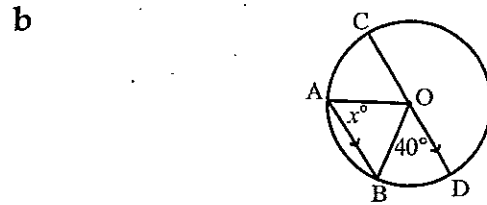
Circle geometry (OPTION 5)

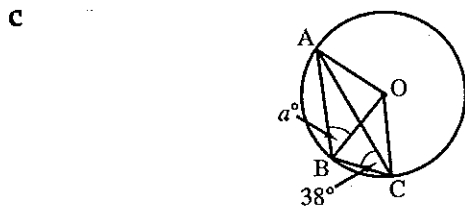


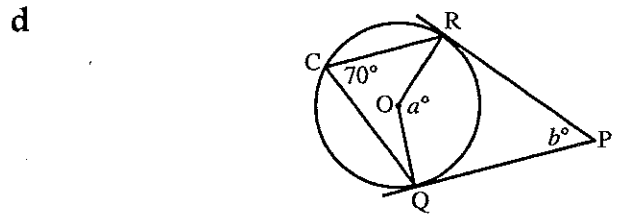
UNIT 7: Deductive exercises related to the circle

QUESTION 1 Find the value of the pronumeral.

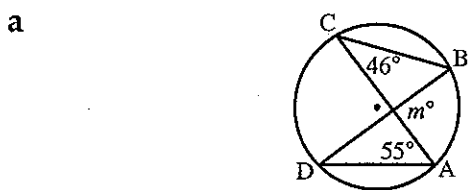


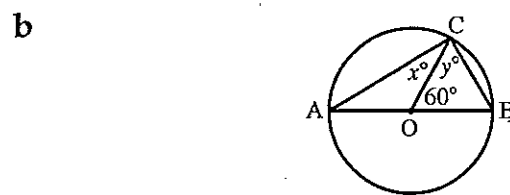


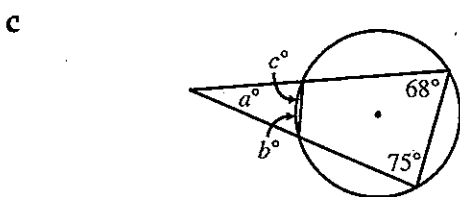


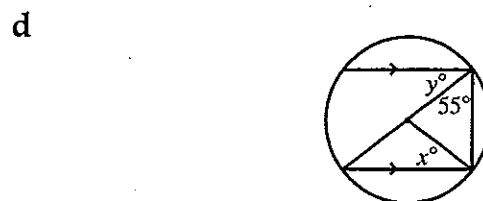


QUESTION 2 Find the value of the pronumeral.









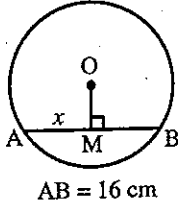
Circle geometry (OPTION 5)



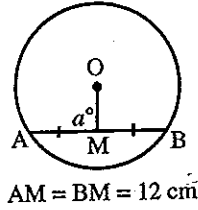
UNIT 8: Miscellaneous questions

QUESTION 1 Find the value of the pronumeral.

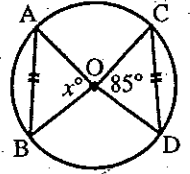
a



b

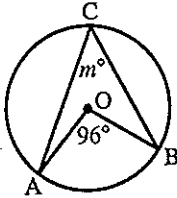


c

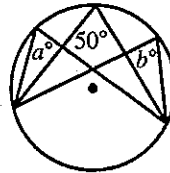


QUESTION 2 Find the value of the pronumeral.

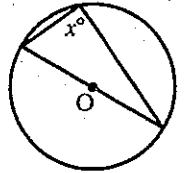
a



b

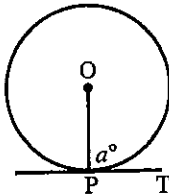


c

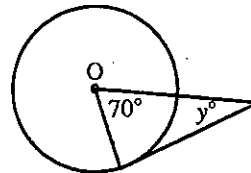


QUESTION 3 Find the value of the pronumeral.

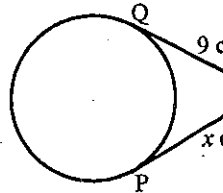
a



b

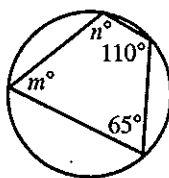


c

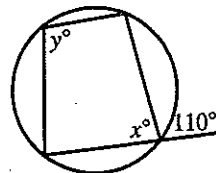


QUESTION 4 Find the value of the pronumeral.

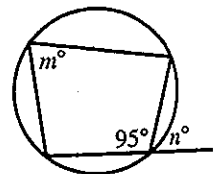
a



b

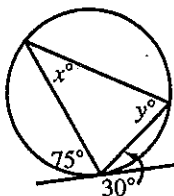


c

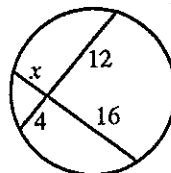


QUESTION 5 Find the value of the pronumeral.

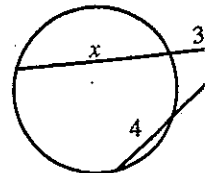
a



b



c



Answers

- 5 a 9.53 cm b 13.59 cm c 10.58 cm 6 a $36^{\circ}52'$ b $67^{\circ}23'$ c $61^{\circ}56'$ 7 a $x=4.65$ m b $x=9.58$ cm, $p=13.89$ cm
- PAGE 60** 1 a 0.5 b -0.64 c 0.58 d -0.67 e -0.17 f -0.87 g 3.06 h 0.45 i -0.10 2 a $60^{\circ}, 120^{\circ}$ b $41^{\circ}25'$ c 120° d 14 e $60^{\circ}42'$ f $129^{\circ}25'$ 3 a $55^{\circ}26', 124^{\circ}34'$ b $122^{\circ}09'$ c $37^{\circ}33'$ d $121^{\circ}29'$ 4 a $223^{\circ}03', 316^{\circ}57'$ b 300° c $291^{\circ}15'$ d $299^{\circ}39'$
- 5 a $\sin 120^{\circ} = 0.8660, \cos 120^{\circ} = -0.5, \tan 120^{\circ} = -1.7320$ b $\sin 198^{\circ} = -0.3090, \cos 198^{\circ} = -0.9511, \tan 198^{\circ} = 0.3249$ c $\sin 300^{\circ} = -0.8660, \cos 300^{\circ} = 0.5, \tan 300^{\circ} = -1.7321$ d $\sin 70^{\circ} = 0.9397, \cos 70^{\circ} = 0.3420, \tan 70^{\circ} = 2.7475$ e $\sin 290^{\circ} = -0.9397, \cos 290^{\circ} = 0.3420, \tan 290^{\circ} = -2.7475$ f $\sin 320^{\circ} = -0.6428, \cos 320^{\circ} = 0.7660, \tan 320^{\circ} = -0.8391$ 6 -0.6614, -1.1339
- PAGE 61** 1 a 9.44 cm b 11.91 cm 2 a 35° b 75° 3 a 3.12 m b 2.13 m 4 a $\angle C = 70^{\circ}, b = 7.42$ cm, $c = 12.16$ cm b $\angle C = 60^{\circ}, a = 12$ cm, $b = 12.4$ cm
- PAGE 62** 1 a 10.81 m b 19.29 cm 2 a 39° b 117° 3 a 13 cm b 9.6 cm 4 a $c = 11.1$ cm, $\angle A = 51^{\circ}17', \angle B = 68^{\circ}43'$ b $\angle A = 47^{\circ}31', \angle B = 79^{\circ}28', \angle C = 53^{\circ}01'$
- PAGE 63** 1 a 7.7 cm² b 1.5 cm² 2 a 19.3 cm² b 20.1 cm² 3 a 89.5 cm² b 80.8 cm² 4 a 34.6 cm² b 33.3 cm²
- PAGE 64** 1 79.4 cm² 2 39° 3 a 6.2 m b 4.1 m 4 b 139.42 m c 131.01 m
- PAGE 65** 1 C 2 B 3 A 4 D 5 A 6 D 7 B 8 B 9 A 10 B
- PAGE 66** 1 4 2 1.6401 3 5.1468 4 0.0487 5 2.7533 6 0.0188 7 20.2762 8 1.3736 9 -0.8660 10 $14^{\circ}22', 165^{\circ}38'$ 11 18.4 c 12 30.3 cm² 13 $\angle C = 72^{\circ}, b = 5.96$ cm, $c = 12.07$ cm 14 $\angle A = 17^{\circ}, \angle B = 138^{\circ}, b = 20.58$ m 15 $\angle A = 36^{\circ}33', \angle B = 68^{\circ}27', c = 14.6$ cm
- PAGE 67** 1 a 9 cm b 18 cm c 6.3 cm 2 a 90° b 90° c 90° 3 a 85° b 50° c 120° 4 a $x=5$ cm b $y=7$ cm c $a=12$ cm 5 a $ON=6$ cm b $OM=9$ cm c $AB=21$ cm
- PAGE 68** 1 a $a=40^{\circ}$ b $m=70^{\circ}$ c $x=30^{\circ}$ d $y=90^{\circ}$ e $m=n=35^{\circ}$ f $x=y=15^{\circ}$ 2 a $a=30^{\circ}$ b $a=b=40^{\circ}$ c $x=15^{\circ}, y=35^{\circ}$ d $m=90^{\circ}$ e $x=y=90^{\circ}$ f $n=90^{\circ}$ 3 a $x=110^{\circ}$ b $a=60^{\circ}, b=120^{\circ}$ c $a=35^{\circ}, b=55^{\circ}$
- PAGE 69** 1 a $x=90^{\circ}$ b $y=90^{\circ}$ c $a=90^{\circ}$ 2 a $a=50^{\circ}$ b $x=35^{\circ}$ c $m=30^{\circ}$ 3 a $a=14$ cm b $b=21$ cm c 9 cm 4 a $x=1$ cm b $y=7$ cm, $m=60^{\circ}$ c $a=20$ cm, $n=50^{\circ}$ 5 a $a=b=90^{\circ}, c=140^{\circ}$ b $m=l=90^{\circ}, n=130^{\circ}$ c $x=y=90^{\circ}, p=120^{\circ}$
- PAGE 70** 1 a $a=92^{\circ}$ b $y=70^{\circ}$ c $a=115^{\circ}$ d $p=75^{\circ}, q=120^{\circ}$ e $m=95^{\circ}, n=89^{\circ}$ f $a=94^{\circ}, b=93^{\circ}$ 2 a $x=120^{\circ}, y=60^{\circ}$ b $a=95^{\circ}$ c $m=110^{\circ}, n=70^{\circ}$ d $a=105^{\circ}, b=75^{\circ}$ e $x=115^{\circ}, y=65^{\circ}, a=91^{\circ}$ f $a=80^{\circ}, b=100^{\circ}, c=105^{\circ}$ 3 a $x=75^{\circ}, y=83^{\circ}$ b $m=90^{\circ}, n=87^{\circ}, p=83^{\circ}$ c $a=80^{\circ}, c=100^{\circ}, b=160^{\circ}$
- PAGE 71** 1 a $m=50^{\circ}$ b $a=45^{\circ}$ c $x=30^{\circ}$ d $x=48^{\circ}, y=60^{\circ}$ e $m=35^{\circ}, n=70^{\circ}, p=75^{\circ}$ f $x=50^{\circ}, y=70^{\circ}$ 2 a $x=135^{\circ}, y=25^{\circ}$ b $a=65^{\circ}, b=65^{\circ}, c=65^{\circ}$ c $x=70^{\circ}, y=80^{\circ}$ d $a=25^{\circ}, b=75^{\circ}$ e $a=55^{\circ}, b=110^{\circ}$ f $m=n=40^{\circ}$
- PAGE 72** 1 a $x=2$ b $y=2$ c $a=5$ d $m=4$ 2 a $x=3$ b $y=1$ c $a=3$ d $m=4$ 3 a $x=6$ cm b $a=22.9$ cm
- PAGE 73** 1 a $a=20^{\circ}$ b $x=40^{\circ}$ c $a=52^{\circ}$ d $a=140^{\circ}, b=40^{\circ}$ 2 a $m=101^{\circ}$ b $x=30^{\circ}, y=60^{\circ}$ c $a=37^{\circ}, b=68^{\circ}, c=75^{\circ}$ d $x=35^{\circ}, y=60^{\circ}$
- PAGE 74** 1 a $x=8$ cm b $a=90^{\circ}$ c $x=85^{\circ}$ 2 a $m=48^{\circ}$ b $a=b=50^{\circ}$ c $x=90^{\circ}$ 3 a $a=90^{\circ}$ b $y=20^{\circ}$ c $x=9$ cm 4 a $m=115^{\circ}$ b $x=70^{\circ}, y=110^{\circ}$ c $m=85^{\circ}, n=85^{\circ}$ 5 a $x=30^{\circ}, y=75^{\circ}$ b $x=3$ c $x=12$
- PAGE 75** 1 B 2 B 3 B 4 B 5 D 6 C 7 B 8 C 9 C 10 B
- PAGE 76** 1 120° 2 90° 3 equidistant 4 equal 5 bisects 6 centre 7 double 8 right angle 9 equal 10 supplementary 11 90° 12 13 parallel 14 right 15 right
- PAGE 77** 1 c, e, f 2 a 3, $6x^3$, 6, 7 b 3, $4x^3$, 4, -2 c 5, $8x^5$, 8, 0 d 8, $5x^8$, 5, -3 e 3, $9x^3$, 9, 5 f 4, x^4 , 1, -5 g 2, $9x^2$, 9, -8 h 3, x^3 , 1, 2 i 5, $6x^5$, 6, 9 3 b, c, f, g, h 4 a $P(1)=1, P(3)=11, P(2)=5$ b $P(0)=3, P(1)=4, P(-1)=2$ c $P(1)=6, P(2)=4, P(-5)=2$ d $f(0)=0, f(1)=2, f(2)=12$ 5 a 5 b 6
- PAGE 78** 1 a $5x^3+3x^2+2x-8$ b $4x^3+2x^2+14x-9$ c $6x^5+12x^4+x^2+9x$ d $3x^6+9x^2+11x-3$ e x^5+8x^2+7x-9 f $x^4+9x^3-8x^2-2x+16$ 2 a x^3+11x^2-7x+2 b $3x^5+x^4+x^3+6x^2+x+1$ c $2x^3+9x^2+3x-5$ d $3x^5+x^4+8x^2-9x+18$ e $3x^5+x^4-x^3+3x^2+2x+6$ f $3x^3+14x^2-8x+7$ 3 a $2x^4+x^3+2x^2+9x-15$, degree = 4 b $x^4+x^3+10x^2+x-4$, degree = 4 c $5x^3+2x^2-10$, degree = 3 d $6x^3+7x^2-x-9$, degree = 3 e $x^4+x^3-6x^2+16x$, degree = 4 f $5x^3+14x^2-x-2$, degree = 3 g $8x^4+3x^3+2x^2+2x+6$, degree = 4
- PAGE 79** 1 a $x^3-3x^2-8x+10$ b $3x^3-2x^2+6x-4$ c $6x^5-5x^4-15x^2+3x$ d $2x^6-5x^4-2x^3-x$ e $8x^2+8x+4$ f $-x^4+5x^3-7x^2+3x+13$ 2 a $-2x^3-x^2+11x-16$ b $-7x^5-x^4+4x^3+7x^2-x-2$ c $-3x^3-2x^2+5x-7$ d $-7x^5-x^4+3x^3+6x^2-7$ e $-7x^5-x^4+x^3+5x^2+4x-9$ f $-x^3-x^2-6x+9$ 3 a $-3x^4+x^3-4x-1$, degree = 4 b $x^5+4x^2+2x-10$, degree = 5 c $8x^3-11x^2+7x+2$, degree = 3 d $x^4-4x^3+11x^2-7x$, degree = 4 e $x^5-3x^3-9x^2+13x-3$, degree = 5 f $6x^3-2x^2-3x-1$, degree = 3 g $8x^3-x^2+8x-11$, degree = 3