

ACCUPL

Advanced Algebra and Functions

Sample Questions

College Board

&ROOHJH %RDUG LV D PLVVLRQ GULYHQ QRW IRU SUR@W RUJDQLJDWLRQ WKDW
FROOHJH VXFFHV V DQG RSSRUWXQLW\)RXQG HG LQ &ROOHJH %RDUG ZDV F
DFFHV WR KLJKHU HGXFDWLRQ 7RGD\ WKH PHPEHUVKLS DVVRFLDWLRQ LV PD
RI WKH ZRUOG V I @0ÀÀ KLJKHU HGX@0ÀÀ P ERIFL@0ÀÀ HSDUH IRU D VXFFHV VIXO V
UHDGLQHVV DQG FROOHJH VXFFHV V LQFOXGLQJ WKH 6\$7< DQG WKH \$GYDQFHG 3
3URJUDP 7KH RUJDQLJDWLRQ DOVR VHUYHV WKH HGXFDWLRQ FRPPXQLW\ WKUR
DGYRFD\ RQ EHKDOI RI VWXGHQWV HGXFDWRUV DQG VFKRROV

)RU IXUWKHU LQIRUPDWLRQ YLVLW collegeboard.org

ACCUPLACER Advanced Algebra and Functions Sample Questions

7KH \$GYDQFHG \$OJHEUD DQG)XQFWLRQV SODFHPHQW WHVW LV D FRPSXWHU DG
RI WHVW WDNHUV DELOLW\ IRU VHOHFWHG PDWKHPDWLFV FRQWHQW 4XHVLWLR
RI WRSLFV LQFOXGLQJ D YDULHW\ RI HTXDWLRQV DQG IXQFWLRQV LQFOXGLQJ
UDWLRQDO UDGLFDO SRO\QRPLDO DQG H[SRQHQLWDO 4XHVLWLRQV ZLOO DOV
JHRPHWU\ DQG WULJRQRPHWU\ FRQFHSWV ,Q DGGLWLRQ TXHVWLRQV PD\ DVVH
PDWK DELOLW\ YLD FRPSXWDWLRQDO RU °XHQF\ VNLOOV FRQFHSWXDO XQGHU
FDSDFLW\ WR DSSO\ PDWKHPDWLFV SUHVHQWHG LQ D FRQWH[W \$OO TXHVWLRQ
LQ IRUPDW DQG DSSHU GLVUHWHO\ VWDQG DORQH DFURVV WKH DVVHVPHQ
NQRZOHGJH DQG VNLOO FDWHJRULHV DUH DVVHVVHG

f / LQH DU HTXDWLRQV

f / LQH DU DSSOLFDWLRQV

f)DFWRULQJ

f 4XDGUDWLFV

f)XQFWLRQV

f 5DGLFDO DQG UDWLRQDO HTXDWLRQV

f 3RO\QRPLDO HTXDWLRQV

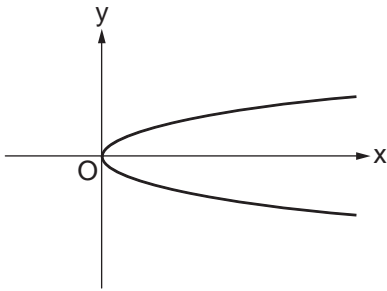
f ([SRQHQLWDO DQG ORJDULWKPLF HTXDWLRQV

f *HRPHWU\ FRQFHSWV

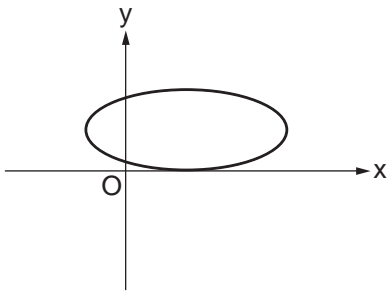
f 7ULJRQRPHWU\

6. Which of the following is the graph of a function where $y = f(x)$?

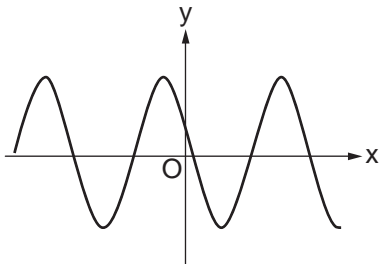
A.



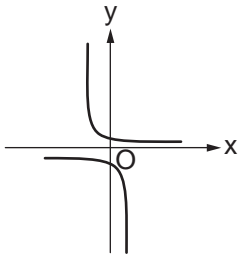
B.



C.



D.



7. Which of the following expressions is equivalent to $3x^2 + 6x - 24$?

- A. $3(x + 2)(x - 4)$
- B. $3(x - 2)(x + 4)$
- C. $(x + 6)(x - 12)$
- D. $(x - 6)(x + 12)$

12.

Rationales

1. Choice D is correct. $7KH YDOXH(12) RDQ EH IRXQG E\12for E\12in the WXWLQJ$
 $HTXDWLRQ(12) 7KLV(12)E(12+8) ZKLFK LV HTXDO WR$
 $\&KRLFH \$ LV LQFRUUHFW 7KLV DQVZHU SUHVHQRW WKH YDOXH RI$
 $12=3(x+8) \&KRLFH \% LV LQFRUUHFW 7KLV DQVZHU UHSUHVHQWV WKH YDOXH RI$
 $H[SUHVVLRQ LQ SDUHQRWKVHV \&KRLFH \& LV LQFRUUHFW 7KLV DQVZHU LV D$
 $GLVWULEXWLQJWKH WKH H[SUHVVLRQ=3(12)SDUHQRWKVHV$
2. Choice A is correct. $7KH VORSHV RI SHUSHQGLFXODU HFDXVH LW LV DQ$
 $HDFK RWKHU 7KH VORSH RI KHLQJHQWV 4 JUDSKU LV$
 $is 5 \$ OLQH WKDW SDVVH 4 WKLQ WKUH 5 WHIRUH$
 $WKH HTXDWRQ 5x, LVREUHFW \&KRLFH \% LV LQFRUUHFW EHFDXVH LW LV DQ$
 $HTXDWLRQ RI D OLQH WKDW LV SHUSHQGLFXODU WR WKH OLQH VKRZQ EXW L$
 $WKH RULJLQ \&KRLFH \& LV LQFRUUHFW EHFDXVH WKLV HTXDWLRQ LV SDUDOO$
 $QRW SHUSHQGLFXODU \&KRLFH ' LV LQFRUUHFW EHFDXVH LW LV WKH HTXDWL$
 $WKH JUDSK$
3. Choice D is correct. $7KH VXUIDFH DUHD RI WKH ULJKW UHFWDQJXODU SULVP LV WKH V$
 $DUHD RI HDFK RI WKH IDFHV RI WKH 2(lengthx width)+$
 $2(heightx width) ZKL 2(4 cmx 9 cm)+ 2(3 cmx 9 cm)+$
 $2(4 cmx 3 cm) = 50 cm^2 \&KRLFH \$ LV LQFRUUHFW EHFDXVH LW LV KDOI WKH VXUIDFH$
 $WKH SULVP \&KRLFH \% LV LQFRUUHFW EHFDXVH WKH SULVP LQ$
 $\& LV LQFRUUHFW EHFDXVH WKH VXUIDFH DUHD RI WKH SULVP GHVF$
4. Choice B is correct. $8VLQJ WKH GLVWULEXWLRQ SURSHU\ WKH JLYHQ H[SUHVVLRQ F$
 $UHZULW(x^2)+x(3x)+x(2)+7(x^2)+7(3x)+7(2))XUWKHU VLPSOLILQJ UHVXOWV LQ$
 $x^3 3x^2+2x+7x^2 21x+14)LQDOO\ DGGLQJ OLPH 19KH LVP \LHOGV$
 $\&KRLFHV \$ \& DQG ' DUH LQFRUUHFW EHFDXVH WKH\ HDFK UHVXOW IURP HUU$
 $SHUIRULPLQJ WKH QHFHVVDU\ GLVWULEXWLRQ DQG DGGLQJ OLNH WHUPV$
5. Choice A is correct. $7KH FRVW SHU SRXQG RI DSSOHV FDQ EH GHWHUPLQHG E\ WKH$
 $VORSH RI WKH JUDSK 7KH FRVW SHU SRXQG RI SHDUV FDQ EH$
 $GHWHUPLQHG E\ WKH VORSH RI WKH OLQH GHQHG E\ WKH HTXDWLRQ$

14. Choice D is correct. $6\sqrt{5x+1} = 6$ DQG WKHUH DUH $x^2 + 2x + 15 = 0$ ERWK VLGHV RI WKH HTXDWLRQ \LHOGV
 $\sqrt{5x+1} = 6$ DQG WKHUH DUH $x^2 + 2x + 15 = 0$ ERWK VLGHV RI WKH HTXDWLRQ URRW RI a
 QXPEHU EHLQJ QHJDWLYH VR WKH HTXDWLRQ KDV QR UHDO VROXWLRQ &KRL
 LQFRUUHFW GXH WR FRPSXWDWLRQ $x^2 + 2x + 15 = 0$ ERWK VLGHV RI WKH HTXDWLRQ
 LQ WKH RULJLQDO HTXDWLRQ &KRLFH % LV LQFRUUHFW EHFDXVH LV LV WKH
 WKH HTXDWLRQ

15. Choice A is correct. $x^2 + 2x + 15 = 0$ 7R VROYH WKH HTXDWLRQ $x^2 + 2x + 15 = 0$ ERWK VLGHV RI WKH HTXDWLRQ
 $x^2 + 2x + 15 = 0$ 6LPSOLILQJ ERWK VLGHV RI WKH HTXDWLRQ $x^2 + 2x + 15 = 0$ ERWK VLGHV RI WKH HTXDWLRQ
 $x^2 + 2x + 15 = 0$ IURP ERWK VLGHV RI WKH HTXDWLRQ $x^2 + 2x + 15 = 0$ ERWK VLGHV RI WKH HTXDWLRQ
 $x^2 + 2x + 15 = 0$ $x^2 + 2x + 15 = 0$ ERWK VLGHV RI WKH HTXDWLRQ WR \LHOG
 $x^2 + 2x + 15 = 0$

19.



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