MAT1033 - Intermediate Algebra - Final Exam Review
Textbook: Beginning & Intermediate Algebra, 5th Ed., by Martin Gay

Section 2.3
Solve the e ! ation.

1) x !"x 1) #

#) $\frac{1}{"}$x # $\frac{1}{\$}$x $\frac{\%}{"}$

") &.&'y &.1#!$&&& y) &.&$y

Section 2."
Solve.

%) (o)r time* the *)m o+ *ome n)mber ,l)* # i* e-)al to . time* the n)mber min)* #&. (ind the n)mber.

5) The length o+ a re/tang)lar room i* +eet longer than t0i/e the 0idth. I+ the room!* ,erimeter i* #1& +eet, 0hat are the room!* dimen*ion*2

Section 2.#
Solve the $orm !la $or the %&eci$ied variable.

$) 3 #4 #5 +or 4

') 6 $\frac{1}{"}$Ah +or A

Section 2.'
Solve. I$ needed( ro!nd to two decimal &lace%.

.) 7obin got a %8 rai*e in her *alary +rom la*t year. Thi* year *he i* earning 9"',%%&. :o0 m)/h did *he make la*t year2

) :o0 m)/h ,)re a/id *ho)ld be mixed 0ith $ gallon* o+ a 5&8 a/id *ol)tion in order to get an .&8 a/id *ol)tion2

Section 2.)
Solve.

1&) I+ 9#&&& i* in;e*ted at 1&8 *im,le ann)al

**.** etermine whether the **&**air o**$** line**%** i**%** **&**arallel**(**
**&**er**&**endic**!** lar**(** or neither.

**#&)** **"**x **%**y

Section ".#

Solve.

".) @ne n)mber i* 1& le** than a *e/ond n)mber. T0i/e the *e/ond n)mber i* 5 more than 5 time* the +ir*t. (ind the t0o n)mber*.

") Ae;on ,)r/ha*ed ti/ket* to an air *ho0 +or . ad)lt* and # /hildren. The total /o*t 0a* 91%&. The /o*t o+ a /hild!* ti/ket 0a* 95 le** than the /o*t o+ an ad)lt!* ti/ket. (ind the ,ri/e o+ an ad)lt!* ti/ket and a /hild!* ti/ket.

Section 2."

,ra&h the ine !alit+.

%&) 5x y 1&

%1) "x 5y 15

,ra&h the %ol!tion o$ the %+%tem o$ linear ine !alitie%.

%#) $\begin{cases} y \quad x \quad " \\ y \quad 5 \quad x \end{cases}$

%") $\begin{cases} y \quad #x \quad ' \\ "x \quad %y \quad . \end{cases}$

Section #.1

Sim&li$+ the ex&re%%ion.

%%) $\left(\frac{"x^{#}y^{#}}{B"}\right)^{#}$

%5) $\frac{15m^{1"}n^{1"}}{"m^{1#}n^{1&}}$

%$) %y^&

Section #.2

3er$orm the indicated o&eration.

%') ! $y ) ! %y# "y %)

%.) !5n$ 1 n5 1") !#n$ 'n5 )

Section #.3

M!lti&l+.

%) !"x 1#)!x $)

5&) !a $)!a# $a )

Section #."

M!lti&l+.

51) ! a ')#

5#) !5, 1#)!5, 1#)

Section #.#

Sim&li$+ the ex&re%%ion. 0rite the re%!lt !%ing &o%itive ex&onent% onl+.

5") % "

5%) !x 5y$) "

55) $\frac{\#\ x\ ^{5}y^{\%}}{\#\ \$\ \$}$

Section '.2

Factor com&letel+. I$ the &ol+nomial cannot be $actored(
write 4&rime.4

$#) $x^{#}$ x - 20

$") "$x^{#}$ xy 1#$y^{#}$

$%) $x^{#}$ x %5

Section% '.3-'."

Factor com&letel+. I$ the &ol+nomial cannot be $actored(
write 4&rime.4

$5) $$y^{#}$ - 17y + 12

$$) 1#$y^{#}$ 5%y "&

$') $%$x^{#}$ .&x #5

$.) "$x^{#}$ #x .

Section '.#

Factor com&letel+. I$ the &ol+nomial cannot be $actored(
write 4&rime.4

$ ) #5$x^{#}$ %

'&) $x^{%}$ .1

'1) $x^{"}$ .

'#) 5%$x^{"}$ #5&

Section '.'

Section ).#

Solve the e !ation.

..) $1 \quad \frac{1}{x} \quad \frac{1\#}{x^{\#}}$

. ) $\frac{"}{y \quad \#} \quad \frac{'}{y \quad \#} \quad \frac{.}{y^{\#} \quad \%}$

&) $\frac{1}{x \quad '} \quad \frac{\#}{x \quad "} \quad \frac{\%}{x^{\#} \quad 1\&x \quad \#1}$

Section ).'

Solve.

1) I+ three time* a n)mber added to % i* di;ided by the n)mber ,l)* 11, the re*)lt i* +o)r third*. (ind the n)mber.

#) Mark /an +ini*h a land*/a,ing Cob in # ho)r*, 0hile it take* 7a/hel " ho)r* to +ini*h the *ame Cob. I+ Mark and 7a/hel 0ill 0ork together on the Cob, and the /o*t o+ labor i* 9$& ,er ho)r, 0hat *ho)ld the labor e*timate be2 !7o)nd to the neare*t /ent, i+ ne/e**ary.)

") A /ar tra;el* %&& mile* on le;el terrain in the *ame amo)nt o+ time it tra;el* 1$& mile* on mo)ntaino)* terrain. I+ the rate o+ the /ar i* "& mile* ,er ho)r le** in the mo)ntain* than on le;el gro)nd, +ind it* rate in the mo)ntain*.

Section ).)

Sim&li$+.

%) $\dfrac{\dfrac{x \quad 1}{\$}}{\dfrac{"x \quad 1}{"\&}}$

5) $\dfrac{\dfrac{1\&}{a} \quad 1\&}{\dfrac{1\&}{a} \quad 1\&}$

$) $\dfrac{1 \quad \frac{"}{x}}{x \quad \frac{}{x}}$

Section 10.1

Find the root. A%%!me that all variable% re&re%ent nonnegative real n!mber%.

') $\sqrt{\dfrac{\%}{1\&\&}}$

.) $\sqrt{1\&\&}$

) $\sqrt["]{.x^{\$}}$

1&&) $\sqrt[\%]{.1x \cdot y^{1\$}}$

Section 10.2

/%e radical notation to write the ex&re%%ion. Sim&li$+ i$ &o%%ible.

1&1) $1\$^{1D\#}$

0rite with &o%itive ex&onent%. Sim&li$+ i$ &o%%ible.

1&#) $\#5^{"D\#}$

/%e the &ro&ertie% o$ ex&onent% to %im&li$+ the ex&re%%ion. 0rite with &o%itive ex&onent%.

1&") $!b^{5)^{\#D5}}$

1&%) $B^{\#D'} \quad B^{"D'}$

Section 10.3

Sim&li$+ the radical ex&re%%ion. A%%!me that all variable% re&re%ent &o%itive real n!mber%.

1&5) $\sqrt{\dfrac{.\&x^{\#}y}{\%}}$

Section 10."

Add or %!btract. A%%!me all variable% re&re%ent &o%itive real n!mber%.

1&) #$\sqrt{\%.}$ 1&$\sqrt{1\ \#}$ $\sqrt{1\&.}$

11&) $\%\sqrt{a}^{"}$ $\sqrt{\$\%a}^{"}$

M!lti&l+( and then %im&li$+ i$ &o%%ible.

111) $\$\sqrt{5}!\sqrt{11}\ \sqrt{5})$

11#) $!\sqrt{'}\ \sqrt{1"})!\sqrt{'}\ \sqrt{1"})$

Section 10.#

Rationali8e the denominator and %im&li$+.

11") $\frac{\#\sqrt{'}}{\sqrt{"}}$

0rite the con9!gate o$ the ex&re%%ion.

11%) $.\sqrt{5}\ 11\sqrt{y}$

Rationali8e the denominator and %im&li$+.

115) $\frac{\sqrt{5}\ \sqrt{\$}}{\sqrt{5}\ \sqrt{\$}}$

Section 10.'

Solve.

11$) $\sqrt{\%x\ \$}\ '\ \&$

11') $\sqrt{5x\ 11}\ 5\ x$

11.) =/ott *et ),, a ;olleyball net in hi* ba/kyard. @ne o+ the ,ole*, 0hi/h +orm* a right angle 0ith the gro)nd, i* ' +eet high. To *e/)re the ,ole, he atta/hed a ro,e +rom the to, o+ the ,ole to a *take " +eet +rom the bottom o+ the ,ole. To the neare*t tenth o+ a +oot, +ind the length o+ the ro,e.

Section 10.)

0rite in term% o$ i.

11 ) $\sqrt{\ 1\$}$

3er$orm the indicated o&eration. 0rite the re%!lt in the $orm a + bi.

1#&) !" ' i) ! . i)

1#1) !' #i)#

1##) $\frac{.\ \ "i}{\%\ \ \#i}$

Section 11.2

/%e the !adratic $orm!la to %olve the e!ation.

$$x = \frac{-b \pm \sqrt{b^2 - "ac}}{2a}$$

1#") $x^{\#}$ 1%x "% &

1#%) $x^{\#}$ $x #5 &

Solve.

1#5) A ball i* thro0n do0n 0ard 0ith an initial ;elo/ity o+ #. meter* ,er *e/ond +rom a /li++ that i* %& meter* high. The height o+ the ball i* gi;en by the -)adrati/ e-)ation

h %. $t^{\#}$ #.t