1. **(1 point)** `local/Cooper01/Cooper_1_5_22.pgml`
Cooper Section 1.5 #22

Solve $-x+\dfrac{x^2-2}{x+1}=3$.

Hint: Put over a common denominator.

$x=$ _____

Need help? Links to the Online Math Lab:
- **OML links for High School Math Review**

Correct Answers:
- `-(3+2)/(3+1)`

2. **(1 point)** `local/Cooper01/Cooper_1_5_36.pgml`
Cooper Section 1.5 #36

Make the substitution $x=a+a^{-1}$ into $x+2x^{-1}$. Put your answer over a common denominator and simplify. Please write the numerator and denominator separately:

Numberator: _____

Denominator: _____

Need help? Links to the Online Math Lab:
- **OML links for High School Math Review**

Correct Answers:
- `a^4+4a^2+1`
- `a^3+a`

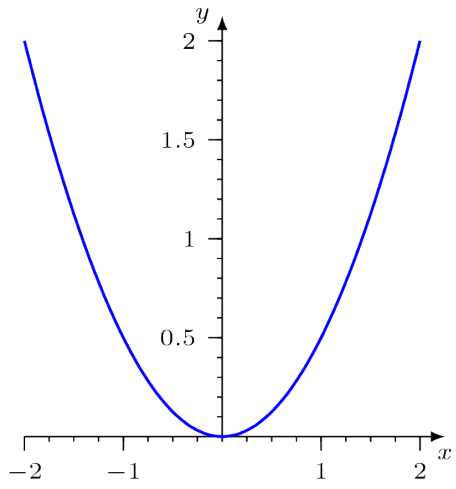
3. **(1 point)** `local/Cooper02/Cooper_2_2_1.pgml`
Cooper Section 2.2 #1

Tear out a page of graph paper from the end of the book. On the graph paper, draw the graph of $y=x^2$ for $-2\le x\le 2$. Use the table of values below and the fact that the graph is symmetric across the y-axis. Mathematically this means $(-x)^2=x^2$. What this means when you look at the graph is that parts of the graph on either side of the y-axis look the same, except that one is the mirror image of the other. This graph will often be used later in the course. So keep it safe.

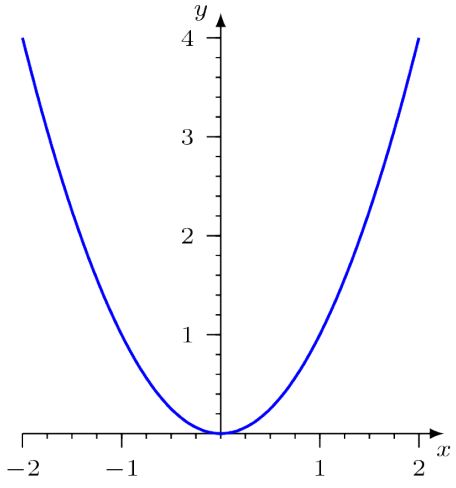
x	0	0.25	0.5	0.75	1	1.25	1.5	1.75	2
y	0	0.0625	0.25	0.5625	1	1.5625	2.25	3.0625	4

Which of the graphs below best matches the one you drew?

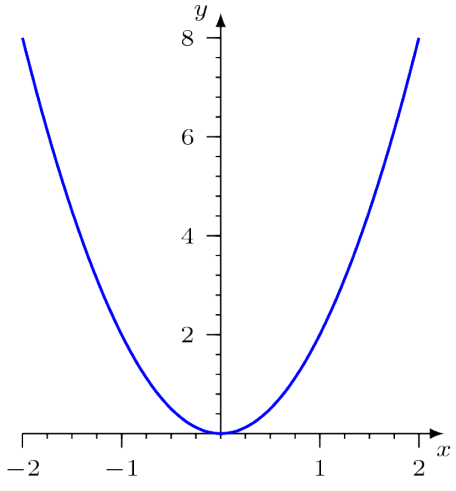
- A.



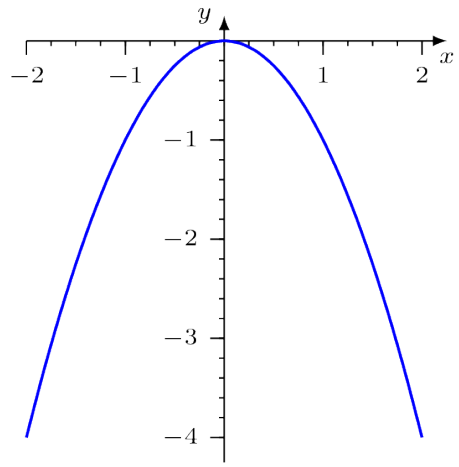
- B.



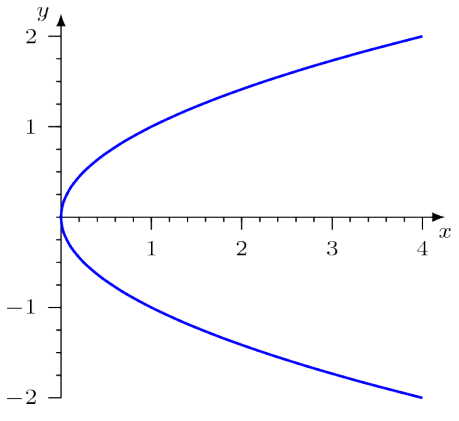
- C.



- D.



- E.



Online Math Lab resources for this problem:
- **Graphs**
- **Word Problems**

Correct Answers:

- B

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4. **(2 points)** local/Cooper03/Cooper_3_1_8.pgml
Cooper Section 3.1 #8

Oil is leaking from an oil tanker at the rate of 9000 liters per hour. 8 liters of oil spread out over 10 square meters of ocean surface. A circular oil slick forms.

a. Express the radius R of the oil slick as a function of the time t (in hours) the tank has been leaking. If your answer involves π, type pi not 3.14.

$R(t) =$ _____ meters

b. After how many hours will the oil slick have radius 1 kilometer?

After _____ hours

Hint: You will find a ***cunning plan*** at the bottom of page 47.

Online Math Lab resources for this problem:
- **Word Problems**
- **OML links for High School Math Review**

Correct Answers:

- sqrt(9000*10/8*t/pi)
- 279.253

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5. **(1 point)** local/Cooper03/Cooper_3_2_1.pgml
Cooper Section 3.2 #1

A rectangular field is to have an area of 25 m^2 and is to be surrounded by a fence. The cost, C, of the fence is 2 dollars per meter of length. Express the total cost of the fence in terms of the width of the field (use the variable 'w' for width).

$C(w) =$ $_____

Online Math Lab resources for this problem:
- **Word Problems**
- **OML links for High School Math Review**

Correct Answers:

- 2*(2(25/w)+2*w)

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6. **(1 point)** local/Cooper03/Cooper_3_2_2.pgml
Cooper Section 3.2 #2

I have three numbers. The biggest one is twice the middle one, and the biggest one plus the middle one is four times the smallest one. The smallest one plus the middle one is two less than the biggest one. What are the numbers?

smallest number = _____

middle number = _____

biggest number = _____

Online Math Lab resources for this problem:
- **Word Problems**
- **OML links for High School Math Review**

Correct Answers:

- 6
- 8
- 16

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7. **(1 point)** local/Cooper04/Cooper_4_1_1.pgml
Cooper Section 4.1 #1

A car travels at constant speed for 9 days and covers 1900 miles. What is the speed of the car in centimeters/minute? Use the conversion factors on page 55 (that is, use 1 mile $\approx 8/5$ km).

_____ cm/min

Online Math Lab resources for this problem: 8
OML links for Units
- **Word Problems**

Correct Answers:
- `1000*1900/(9*9)`

---

8. **(1 point)** `local/Cooper04/Cooper_4_1_2.pgml`
Cooper Section 4.1 #2

If a car travels 35 miles per gallon of fuel (in other words, the car does 35 mpg), how many kilometers does it travel per liter of fuel? Use the conversion factors on page 55 (that is, use 1 mile $\approx 8/5$ km and 1 gallon $= 8$ pints and 1 liter ≈ 2 pints).

The car travels about _____ km on one liter of fuel

Online Math Lab resources for this problem:
- **OML links for Units**
- **Word Problems**

Correct Answers:
- `0.4*35`

---

9. **(2 points)** `local/Cooper04/Cooper_4_1_3.pgml`
Cooper Section 4.1 #3

The Earth travels in a circle around the sun once every year. The radius of the circle is 98 million miles.

a. What is the speed of the Earth in miles per hour?

_____ mi/hr

b. What is the speed of the Earth in centimeters per day? Use the conversion factors on page 55.

_____ cm/day

Online Math Lab resources for this problem:
- **OML links for Units**
- **Word Problems**

Correct Answers:
- `70000`
- `2.67*10^11`

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10. **(1 point)** `local/Cooper01/Cooper_1_6_11.pgml`
Cooper Section 1.6 #11

Use the tax table on page 27 to answer the following questions.

a. Find $f^{-1}(1860)$.

_____ (lower limit)

b. If someone paid 3000 in taxes, what was their income?

_____ (lower limit)

Need help? Links to the Online Math Lab:
- **OML links for Functions**

Correct Answers:
- `23000`
- `32500`