Solution to integral practice sheet

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> int( (2*x^2-x+4)/(x^3+4*x),x);
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$$\ln(x) + \frac{1}{2}\ln(x^2+4) - \frac{1}{2}\arctan\left(\frac{1}{2}x\right) \quad (1)$$

```
> int(exp(2*theta)*sin(3*theta),theta);
```

$$-\frac{3}{13}e^{2\theta}\cos(3\theta) + \frac{2}{13}e^{2\theta}\sin(3\theta) \quad (2)$$

```
> int(1/(y*(2-y)),y);
```

$$\frac{1}{2}\ln(y) - \frac{1}{2}\ln(-2+y) \quad (3)$$

```
> int(t^2*cos(3*t),t);
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$$\frac{1}{3}t^2\sin(3t) - \frac{2}{27}\sin(3t) + \frac{2}{9}t\cos(3t) \quad (4)$$

```
> int((x-1)/(x^2+1),x);
```

$$\frac{1}{2}\ln(x^2+1) - \arctan(x) \quad (5)$$

```
> int(y*sinh(y),y);
```

$$y\cosh(y) - \sinh(y) \quad (6)$$

```
> int(1/(x^4-x^2),x);
```

$$\frac{1}{x} - \frac{1}{2}\ln(x+1) + \frac{1}{2}\ln(x-1) \quad (7)$$

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> int(t^2/(t+4),t);
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$$\frac{1}{2}t^2 - 4t + 16\ln(t+4) \quad (8)$$

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> int((x-1)/(x+4),x);
```

$$x - 5\ln(x+4) \quad (9)$$

```
> int(arctan(x),x);
```

$$x\arctan(x) - \frac{1}{2}\ln(x^2+1) \quad (10)$$